PSEUDO NOUN INCORPORATION AND ARGUMENT STRUCTURE IN NIUEAN

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Abstract

Pseudo Noun Incorporation in Niuean appears to be a problematic construction for lexicalist theory because it seems to exhibit both morphological and syntactic properties. After considering the basic data and generalizations, this paper examines two possible Lexical-Functional analyses. The first, the PRED ARG analysis, looks to map the incorporated noun phrase to revised view of a-structure. The second, the Lexical Sharing analysis (extending Wescoat 2002), looks to treat the construction as a combination of both a morphological construction and a syntactic one. After considering both analyses, the paper discusses what each contributes to the understanding of Pseudo Noun Incorporation in Niuean.

1   Introduction

Pseudo Noun Incorporation (Massam 2001) in the Polynesian language, Niuean, poses two immediate problems to a lexicalist syntactic analysis. The first problem is whether to treat incorporation as a morphological construction or as a syntactic one. Pseudo Noun Incorporation has a pair of properties that appear to be morphological: (1) the verb and the incorporated noun must be adjacent and (2) the incorporated noun must not be preceded by any of its otherwise normal prenominal function words. However, Pseudo Noun Incorporation also has an apparent syntactic property: it appears that not just single words can incorporate, but whole phrases. Thus, the question is how to account for these properties in a monostratal theory that assumes lexical integrity (Bresnan and Mchombo 1995).

The second problem this paper will explore concerns the valency of Pseudo Noun Incorporation. Although two nominal expressions appear in this construction – just as two appear in transitive clauses – the case-marking follows that of other less-controversial intransitive clauses in the language. Thus, an analysis of this construction must also account for this property without compromising an analysis of the above phenomena.

In this paper, I will, first, briefly discuss some basic facts about the Niuean language. I will then move to the Niuean Pseudo Noun Incorporation data and establish some basic generalizations about this construction. I will then discuss the first of two analyses, the PRED ARG analysis, which analyzes the incorporated expression as mapping directly into a revised conception of a-structure. I will then examine both its merits and drawbacks. Next, I will look at a second analysis, the Lexical Sharing analysis, which builds on Wescoat 2002. It views the incorporation construction as exhibiting a particular tree geometry. I will likewise discuss its merits and drawbacks. Finally, I will end with a discussion of how each of the two theories contributes to illuminating how Pseudo Noun Incorporation in Niuean works.

1.1 About Niuean

Niuean is natively spoken on Niue Island, an island in the South Pacific south of Samoa and north of Tonga. Politically, the island is in free association with New Zealand (http://www.cia.gov/cia/publications/factbook/geos/ne.html). The Ethnologue estimates the number of Niuean speakers at about 8,000, with communities of speakers in New Zealand, Tonga, and the Cook Islands, in addition to those on Niue Island (http://www.ethnologue.com/show_language.asp?code=NIQ).

Linguistically, Niuean, with Tongan, forms the Tongic subgroup of the Polynesian language family. As a member of the Polynesian family, Niuean is also a member of the much larger Oceanic and Austronesian families (Seiter 1980: xii). Niuean and Tongan are very similar in many respects (especially syntactically) and my own preliminary investigations strongly suggest that Niuean and Tongan have very similar noun incorporation constructions. Thus, in a few cases where the Niuean data is inconclusive, I will bring in Tongan data to inform the discussion.

2 Data

In this section, I will first briefly introduce the basics of Niuean syntax and the kinds of structures that I will be assuming. I will then focus on Niuean incorporation more closely, detailing the properties of this construction.

2.1 Basics of Niuean Syntax

In broad typological terms, Niuean is a head-initial language with a largely isolating morphological profile. In terms of basic clausal syntax, the verb is most often in the first lexical word in a given clause, but the verb is usually preceded by a word expressing the tense or aspect of the sentence. I will regard these preverbal words as members of the category I.[1]

The lexical verb is followed by its nominal arguments, strictly ordered. The ordering of these nominals is given below in (1). The names refer to the case-marking of the nominals and the arrangement from left to right reflects the nominals' order after the verb:

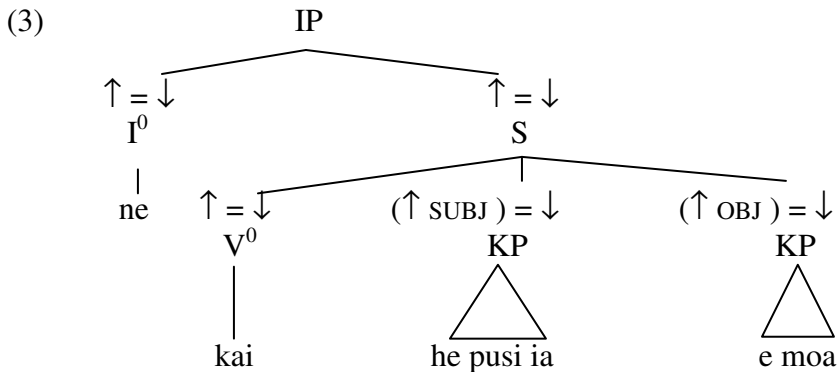(1)   Ergative (if present) < Absolutive < Obliques and Adjuncts

Given below in (2) is an example Niuean sentence with both a preverbal tense/aspect marker and two postverbal nouns.

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[1] It is not entirely clear whether this class of words should be regarded as I^0 or C^0. I chose the former, though nothing critical to any analysis presented here rests on this choice.

(2) **Ne   kai   he   pusi   ia   e   moa.**
     PAST   eat   ERG   cat   that ABS   bird
     T/A   V   [Erg KP   ][Abs KP   ]
     That cat ate the chicken.   (Seiter 1980: 29)

Given below in (3) is the annotated c-structure that I am assuming for the sentence in (2). Note that this groups the verb and its nominal arguments into one constituent, the exocentric node, S. This analysis is similar to other LFG analyses of verb-initial languages (see, for example, Kroeger 1993: 119 for Tagalog and Bresnan 2001: 127 for Welsh).

(3)   IP
         $\uparrow = \downarrow$ $\uparrow = \downarrow$
           I^0 S
            |
           ne $\uparrow = \downarrow$ ($\uparrow$ SUBJ) = $\downarrow$ ($\uparrow$ OBJ) = $\downarrow$
                     V^0 KP   KP

                     kai   he pusi ia   e moa

In addition to the preverbal tense/aspect markers, there is also a collection of "particles" that follow the verb. This includes the question marker, several deictics known in the Polynesianist literature as directionals, and many kinds of adverbials (see the more detailed discussion in Massam 2001: 179-181). Their placement is schematically shown in (4):

(4)   Verb   "Particles"   Nominal Arguments

A small subset of these "particles" is illustrated (and underlined) in (5) below:

(5) **Takafaga   tūmau   nī   e   ia   e   tau   ika.**
     Hunt   always   EMPH ERG he   ABS PL   fish
     V   [postverbal particles   ][Erg KP   ][Abs KP   ]
     He's always fishing.   (Seiter 1980: 69)

As will be shown below, these "particles" are one useful diagnostic for determining whether incorporation is present.
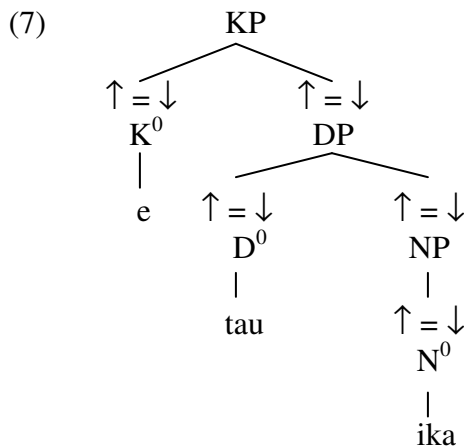
Turning now to nominal syntax, nominal expressions in Niuean also have an analytic structure. Nouns and pronouns are almost always preceded by words that express case.[2] I will regard these case-marking words as members of the category K, a class of "outer

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[2] The exceptions with pronouns involve a phonetic or phonological process that deletes the case marker before the pronoun. Most of the exceptions with nouns involve incorporation. For a full discussion, see Seiter 1980: 45-48.

determiners" distinct from the class of prepositions. Independent words that mark number or definiteness/specificity are located between the case markers and nouns. I will regard these as members of the category D.[3] An example noun phrase is given below in (6).

(6)　　**e**　　　**tau**　　**ika**
　　　　ABS　　PL　　　fish
　　　　the fish　　　　　　　(Seiter 1980: 69)

Given the assumptions outlined above, in (7) below is the annotated c-structure I assume for (6).

(7)

```
                    KP
          ↑=↓              ↑=↓
          K⁰                DP
          |          ↑=↓          ↑=↓
          e          D⁰            NP
                     |             |
                    tau           ↑=↓
                                   N⁰
                                   |
                                  ika
```

Having looked, briefly, at what appears prenominally, I turn now to what appears postnominally. Adjectives, prepositional phrases, relative clauses, and possessors all appear after the noun.[4] I will assume that relative clauses and possessors are attached higher up in the nominal structure; either adjoined to KP or in the rightward-branching specifier of KP. I will assume that adjectives, modifying prepositional phrases, and clauses beginning with the tense/aspect marker **ke**[5] are all adjoined at the NP level.
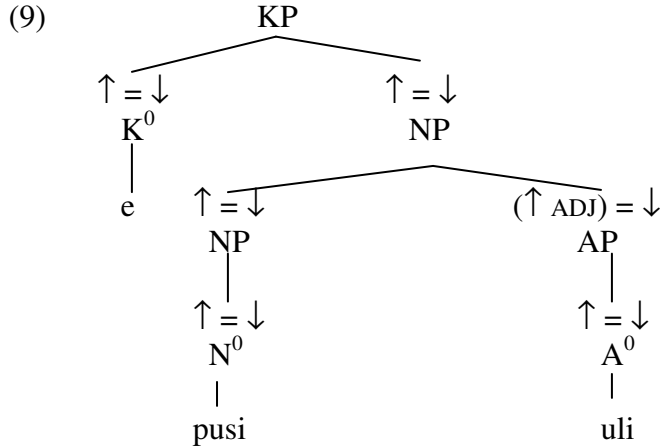
Given in (8) below is a nominal expression with an adjective. Given in (9) below is its annotated c-structure, given my assumptions outlined above.

(8)　　**e**　　　**pusi**　　**uli**
　　　　ABS　　cat　　　black
　　　　a black cat　　　　　(Seiter 1980: 44)

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[3] Some syntacticians may be inclined to assume that such words are the heads of NumP; I choose D since it makes for a more restricted set of functional categories. However, such a decision does not critically change the following analyses and problems.

[4] This statement is a bit of simplification, since some possessors do appear prenominally, as discussed by Kahnemuyipour and Massam (2004). However, due to the assumption that they are attached above the NP as well as their apparent semantic incompatibility with incorporation, these possessors will not figure in this discussion of noun incorporation.

[5] These clauses seem to be semantically similar to relative clauses, but, I believe, syntactically similar to prepositional phrases.

(9)

```
                          KP
           ↑=↓                        ↑=↓
           K⁰                          NP
           |
           e         ↑=↓                      (↑ ADJ)=↓
                     NP                          AP
                     |
                    ↑=↓                         ↑=↓
                    N⁰                          A⁰
                    |                           |
                   pusi                        uli
```

Having sketched out the basics of Niuean syntax, I now turn to the details of the incorporation construction.

2.2 Incorporation

Sentences in Niuean with Pseudo Noun Incorporation have a number of interesting differences and similarities from the ordinary sentences and nominals I discussed above. This section will explicate these contrasts.

2.2.1 Basics of Incorporation

The contrast between non-incorporated and incorporated sentences is illustrated by the pair of sentences given in (10a) and (10b), respectively.

(10) a. Non-incorporated:

Takafaga	**tūmau**	**nī**	**e**	**ia**	**e**	**tau**	**ika.**
Hunt	always	EMPH	ERG	he	ABS	PL	fish
V	[postverbal particles	][Erg KP	][Abs KP				]

He's always fishing. (repeats (5))

   b. Incorporated:

Takafaga	**ika**	**tūmau**	**nī**	**a**	**ia.**
hunt	fish	always	EMPH	ABS	he
V	IN	[postverbal particles]	[Abs KP		]

He's always fishing). (Seiter 1980: 69)
(≈ *He's always fish-hunting)*

Example (10b) illustrates the three basic formal properties of Pseudo Noun Incorporation. First, the verb and noun are adjacent: the incorporated noun is inside of the "particles," next to the verb, and it is not in the usual clause-final position for non-ergative noun phrases (like its semantic paraphrase is in (10a)). Second, all the words I have previously identified as members of K and D that appear in (10a) do not and must not appear in (10b). Finally, the external, non-incorporated nominal argument is marked with the

absolutive case; thus, clauses with incorporation pattern like other intransitive clauses, where the external argument is also marked with absolutive case. An example of such an intransitive clause is given in (11).

(11) **Ne fano e tehina haaku ke he fale koloa.**
  PST go ABS brother my to CM house goods
  My little brother went to the store. (Seiter 1980: 28)

However, as noted in initially by Seiter (1980: 69-70) and in more depth by Massam (2001), incorporated expressions have a fourth interesting property: they can include more than just a bare noun (an N^0). These nominals can be expanded in a number of different ways. An incorporated expression can include a noun and adjective. This exemplified in (12).

(12) **Ne inu <u>kofe kono</u> a Mele.**
  PAST drink coffee bitter ABS Mary
  T/A V [$_{NI}$ N A][Abs KP]
  Mary drank bitter coffee. (Massam 2001: 158)

Incorporated expressions can also include conjoined nouns, as shown in (13).

(13) **Kua kai <u>ika mo e talo</u> a mautolu he mogonei.**
  PREF eat fish with ABS taro ABS we(EXCL) at now
  T/A V [$_{NI}$ N CONJ N] [Abs KP] [Adjunct]
  We are eating fish and taro right now. (Seiter 1980: 70)

A noun and modificational prepositional phrase can also be an incorporated expression, as in (14).

(14) **Kua leva lahi e amaamanaki ke fai <u>pepa pehē nai.</u>**
  PERF long very ABS look.forward SJTV be book like this
  time
      T/A V [$_{NI}$ N PP]
  There has been a longtime of waiting for there to be a book like this.
      (Massam 2001: 160)

And, finally, an incorporated expression can also include a noun with a subjunctive **ke**-clause, as in (15) below:

(15) …**ke kumi <u>mena ke nonofo ai</u> a lautolu.**
  SJTV seek thing SJTV settle there ABS they
  T/A V [$_{NI}$N [**ke** clause]] [Abs KP]
  …that they would seek a place to settle. (Massam 2001: 169)

While the above four examples show that a fair amount can be incorporated with a noun, there do seem to be limits on what is incorporated. In particular, a given noun cannot

incorporate with a "regular" relative clause (i.e. a relative clause not headed by **ke**). This is shown by the ungrammatical example in (16):

(16) **Ne* **inu** <u>**kofe**</u> **ne** **taute** **e** **au** **a** **Sione**
    PAST drink coffee NFUT made ERG I ABS (name)
    T/A V [_{NI NP}N [RelC]][Abs KP]
    *Sione coffee that I made-drank (Massam 2001: 168)

Thus, while all clauses in Niuean with incorporation share the characteristics of the verb-noun adjacency, lack of function words, and the external argument in the absolute case, they can vary considerably in the size of the incorporated expression.

2.1.2 Other properties of noun incorporation in Niuean

In this final section of this section on the Niuean data, I want to discuss four additional properties of the noun incorporation construction in Niuean. First, although all the preceding examples have been intransitive, there are instances where a clause with incorporation appears to be transitive. However, such clauses seem to be restricted to the valency alternation that Seiter (1980), working in a Relational Grammar framework, called instrumental advancement, where an instrument has become an applied object "after" the object has been incorporated. An example of such a transitive sentence is shown in (17). Note that while the non-incorporated arguments appear with case markers and in the ergative-absolutive order noted in (1), the incorporated noun still is positioned adjacent to the verb and lacks a case marker.

(17) **Kua** **tā** <u>**fakatino**</u> **he** **tama** **e** **malala**.
    PERF draw picture ERG child ABS charcoal
    T/A V NI [Erg KP][Abs KP]
    The child has been drawing pictures with charcoal. (Seiter 1980: 267)
    (lit. *The child has been picture-drawing charcoal*)

The second property I want to note in this section is, while Niuean does allow phrasal incorporates, they cannot be discontinuous; that is, Niuean does not allow what is commonly referred to in the literature as "stranding" (Rosen 1989). This is shown in (18) below.

(18) **Ne* **inu** <u>**kofe**</u> **a** **Sione** **ne** **taute** **e** **au.**
    PAST drink coffee ABS (name) NFUT made ERG I
    T/A V [_{NI NP}N][Abs KP][RelC]
    intended*: Sione drank the coffee that I made.* (Massam 2001: 168)

This lack of discontinuity illustrates a critical contrast between the noun incorporation construction found in Niuean and those found in many other languages with similar constructions (such as Mohawk, as discussed in Baker 1996).

The final two properties of incorporation deal with the kinds of nominals that can be incorporated in Niuean. While the proceeding examples have all dealt with nominal phrases that are instances of incorporation of syntactic objects, other grammatical relations can incorporate.

The first of these is a class of nominals known as middle objects (this term is from Chung 1978). These are internal arguments of verbs of low transitivity that are marked with an oblique preposition. An example is given in (19).

(19) **Manako   nakai a   koe   <u>ke   he   tau   manu?</u>**
      like   Q   ABS   you   to   CM   PL   animal
      V   Ques [Abs KP   ][PP   ]
      Do you like the animals?   (Seiter 1980:71)

Seiter (1980: 339) argues that middle objects do not behave syntactically as objects in Niuean. However, they do have one property like objects: they can be incorporated, as in example (20), which, aside from the incorporation, is otherwise very similar to (19).

(20) **Na   manako   <u>manu</u> nakai a   koe**
      PAST   like   animal Q   ABS   you
      T/A   V   NI   Ques [Abs KP   ]
      Are you an animal lover? (≈ Do you animal-like?)   (Seiter 1980:71)

Finally, in a few cases, even adjuncts can incorporate. These incorporating adjuncts seem to be restricted to a particular kind of semantic role, roughly characterized by Massam (2001) as instrument or means of conveyance.[6] An example of this kind of adjunct incorporation is given in (21).

(21) a. Non-incorporated
        Fano a   ia   ke   he   taone <u>he   motokā</u>.
        go   ABS   he   to   CM   town in   car
        V   [Abs KP   ][PP   ][Adjunct PP]
        He went to town in a/the car.   (Seiter 1980:71)

     b. Incorporated
        Fano <u>motokā</u>   a   ia   ke   he   taone.
        go   car   ABS   he   to   CM   town.
        V   NI   [Abs KP   ][PP   ]
        He went to town by car.   (Seiter 1980:71)
        (≈ *He car-went to town*)

So, as this final data section shows, incorporation in Niuean is not solely restricted to putative grammatical objects, but a wide range of argument structure relations, all of which must be taken into consideration when developing an analysis of Niuean incorporation.

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[6] See further discussion in Seiter 1980: 71-73 and Massam 2001: 177-178.

In the next two sections, I will be detailing two possible analyses of Niuean incorporation. I will first discuss each analysis, noting, at the end, the distinguishing qualities of that particular analysis. I will then discuss the various problems of the given analysis, both theory-internal and empirical.

3 The PRED ARG analysis

This first analysis, which I will call the PRED ARG analysis, is a novel analysis receiving its first presentation here. It builds on ideas from Andrews and Manning 1999, Halvorsen and Kaplan 1988, and Kaplan and Maxwell 1996. It is an exemplar of a particular style of analysis where the incorporate is treated as a bare NP and that looks to model the syntactic effect of incorporation using f-structure and a-structure.[7]

3.1 Analysis

This analysis makes two technical augmentations to the theory of f-structures, borrowing and building on Kaplan and Maxwell 1996. First, it views PRED values as being f-structures instead of atomistic values. Second, these PRED-internal f-structures include lexical semantic meaning, in particular a semantic REL attribute, and several ARG_n attributes,[8] a revised view of a-structure. Note that this creates essentially a notational variant of the LCS and TERMS attributes proposed in Andrews and Manning 1999 (see also Alsina 1996 for yet another proposal for revising PRED values). An example of this revised view of f-structures is given below in (22).

(22)
$$\left[\text{PRED} \begin{bmatrix} \text{REL} & \text{`eat'} \\ \text{ARG}_1 & \underline{\quad} \\ \text{ARG}_2 & \underline{\quad} \end{bmatrix} \right]$$

I will assume, informally for the moment (though see the discussion in section 3.2.1), that the "outside" grammatical functions (SUBJ, OBJ, OBL, etc.) structure-share with these PRED-internal ARGs.

With this technical augmentation, the core f-structure idea of this analysis is now possible: the incorporated expressions map into the verb's argument structure – specifically, into the ARGs from above – but do not appear in the f-structure as a grammatical function, such as OBJ. This f-structure idea is coupled with the c-structure idea that the incorporated expression is an NP, not a "full nominal" KP.[9] In particular, I

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[7] Another possible analysis in this style would be one that used the restriction operator (see Butt, et al. 2003). However, as section 3.2 will mention, a restriction analysis sharing the PRED ARG analysis' c-structure assumptions would share the problems with adjacency that the PRED ARG analysis has.

[8] By convention, the lowest numbered argument will correspond to the most prominent semantic argument.

[9] This idea is conceptually very similar to the Massam's (2001) analysis of Niuean within the Minimalism Program and also to aspects of Asudeh and Mikkelsen's (2000) analysis of Danish incorporation within the framework of HPSG.

claim that only "full nominal" projections – KP in Niuean – can be linked with a grammatical function. NPs, lacking the proper functional heads, cannot. However, bare NPs can appear (in Niuean) if they link directly to an ARG.

The analysis of the incorporated expression as an NP also rules out ungrammatical incorporated possessors and relative clauses, since these are seen as structurally part of KP, while ruling in the possible incorporated expressions discussed in the section 2.

To implement this analysis, I propose the following annotated phrase-structure rule, given in (23), which allows for the mapping discussed above.

(23) V′ $\rightarrow$ V^0 NP
      $\uparrow=\downarrow$ $(\uparrow \text{PRED REL}) = \downarrow$ $(\uparrow \text{PRED ARG}_n) = \downarrow$

   (where n = highest numbered ARG in the verb's PRED-internal f-structure[10])

To illustrate this analysis, let us look at an example. Given in (24) is a sentence with an incorporated expression.

(24) **Ne   kai   sipi   mo   e   ika   mitaki** a   **Sione.**
      PST   eat   chip   COM   ABS   fish   good   ABS   (name)
      T/A   V   [NI NP   ][Abs KP   ]
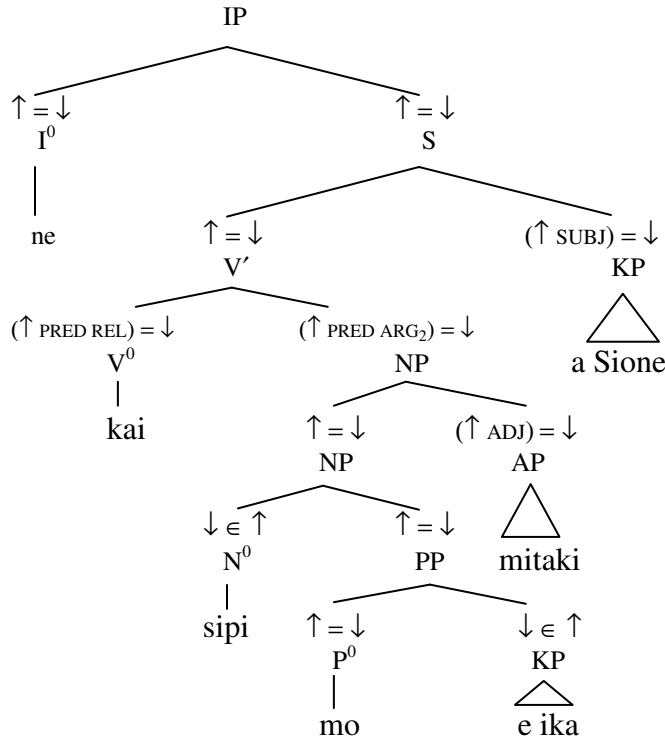   *Sione ate good fish and chips.*   (Massam 2001: 160)

By the rules given in section 2[11] and in (23), it has the c-structure given in (25a) and associated f-structure given in (25b).

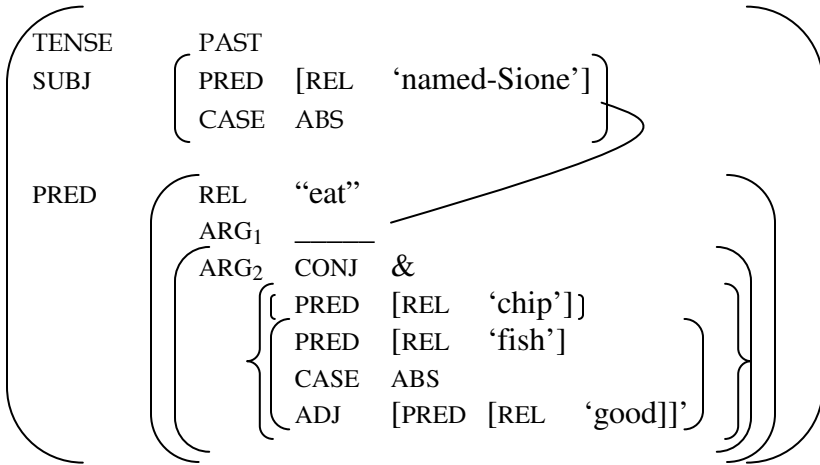[10] Note that this highest numbered ARG corresponds to what has traditionally been called the lowest argument.

[11] Slightly expanded to include the prepositional phrase-like syntax of coordination in Niuean.

(25)

a.   c-structure

```
                            IP
              ┌──────────────┴──────────────┐
          ↑=↓                              ↑=↓
          I⁰                                S
          │                      ┌──────────┴──────────┐
          ne                   ↑=↓                  (↑ SUBJ)=↓
                                V′                       KP
                     ┌──────────┴──────────┐              △
              (↑ PRED REL)=↓        (↑ PRED ARG₂)=↓     a Sione
                   V⁰                    NP
                   │              ┌───────┴───────┐
                  kai          ↑=↓           (↑ ADJ)=↓
                               NP                 AP
                        ┌──────┴──────┐            △
                      ↓∈↑           ↑=↓          mitaki
                      N⁰            PP
                      │        ┌─────┴─────┐
                     sipi    ↑=↓          ↓∈↑
                             P⁰            KP
                             │             △
                             mo          e ika
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$(\uparrow$ PRED REL$)=\downarrow$, $(\uparrow$ PRED ARG$_2)=\downarrow$, $(\uparrow$ SUBJ$)=\downarrow$, $(\uparrow$ ADJ$)=\downarrow$, $\downarrow \in \uparrow$

b. associated f-structure

$$
\begin{bmatrix}
\text{TENSE} & \text{PAST} & & & \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & [\text{REL} & \text{'named-Sione'}] \\ \text{CASE} & \text{ABS} & \end{bmatrix} & & \\
\text{PRED} & \begin{bmatrix} \text{REL} & \text{"eat"} & & \\ \text{ARG}_1 & \underline{\quad\quad} & & \\ \text{ARG}_2 & \text{CONJ} & \& & \\ & \left\{ \begin{bmatrix} [\text{PRED} & [\text{REL} & \text{'chip']}] \\ \text{PRED} & [\text{REL} & \text{'fish'}] \\ \text{CASE} & \text{ABS} & \\ \text{ADJ} & [\text{PRED} & [\text{REL} \quad \text{'good]]'}] \end{bmatrix} \right\} \end{bmatrix}
\end{bmatrix}
$$

Note that the rule in (23) maps the large amount of information within the incorporated NP inside the PRED-internal f-structure.

To conclude this exposition of the PRED ARG analysis, let me summarize the key theoretical features of this analysis. First, it treats Niuean noun incorporation as being entirely syntactic, formally. There is no morphology involved; rather, the verb and incorporated nominal is viewed as a phrasal unit. The valency facts are accounted for through a direct mapping from c-structure to (a revised view) of a-structure, along with

the unification of ARGs and GFs. In terms of theoretical architecture, the PRED ARG analysis maintains the existing LFG c-structure architecture, but alters the f-structure architecture.

3.2 Problems

The following sections discuss the problems that the PRED ARG analysis raises, covering both theory-internal and empirical problems.

3.2.1 Theory-internal

In this section, I will discuss three theory-internal problems with the PRED ARG analysis. First, the revision to the f-structures necessitates a need to re-formulate the constraints on valency. Formal implementation of this is actually reasonably straightforward, as the linking of ARGs and GFs can be implemented formally using functional uncertainty, as in (26):

(26) $ARG_n = ((PRED \uparrow)\ GF)$

Completeness and Coherence can then apply, requiring that the GFs must be linked to an ARG.

However, even with this technical hurdle cleared, this re-formulation is committed to the view that linking is highly syntacticized, much more so than the existing LFG valency theory. It is not clear that such a highly syntacticized view would be desirable, especially given the success of previous LFG dependency-based analyses.

A second problem is that adjunct incorporation (as shown in example (21)) is problematic if the PRED-internal structure is assumed to be restricted to lexically selected arguments. This problem seems to be a symptom of a more general problem with the PRED ARG analysis: it tries to capture syntactic and semantic features with the same mechanism.

The final problem is not a problem in the syntactic domain, but of the syntax-semantic interface. However, I think this is, nevertheless, an important concern, given the parallel architecture of LFG. This problem is that it is not completely clear how the incorporation semantics might map from the PRED ARG analysis's f-structure to the appropriate σ-structure. Central to this problem is how this f-structure could map into a σ-structure that captures the property-like interpretation of the incorporated expression (as argued for in the semantics literature, see van Geenhoven 1998, Chung and Ladusaw 2003, and Farkas and de Swart 2003 for some proposals). It would seem that the absence of the prenominal function words play a part in this, but it is not clear how the absence of function words can be mapped to the f-structure (and then to σ-structure).

3.2.2 Empirical

There are also two empirical problems that the PRED ARG raises. The first is that it makes the claim that the incorporated expression is neither a syntactic argument nor has a grammatical function. While the intransitive-like case-marking pattern of the incorporation construction cannot be ignored, the case-marking alone is not sufficient evidence that the incorporated expression is not an argument. Furthermore, the incorporated expression can be viewed as still fulfilling the verb's valency requirements; the incorporated expression still seems to fill an internal argument role, even if the incorporated expression itself is an atypical nominal phrase. Thus, it seems that the complete denial of the incorporated expression's argumenthood may not be the most insightful way to analyze this construction.

The second empirical problem comes from comparative evidence. Although Niuean data is inconclusive, data from the closely related and similar behaving Tongan suggests that the true generalization in this construction is that verb and noun must be adjacent, regardless of which part of speech category interceding elements belong to. Thus, the simple solution of analyzing Pseudo Noun Incorporation as incorporation of an NP is not completely accurate.

In Tongan, there is a class of prenominal adjectives, which are absent in Niuean. This exemplified by the underlined word in (27) below.[12]

(27) **Na'e tō 'e Sione 'ene ki'i manioke.**
PAST plant ERG (name) his small cassava
T/A V [Erg Nominal] [$_{Abs}$ D A N]
Sione planted his small amount of cassava

These prenominal adjectives cannot incorporate, as shown in (28).

(28) *__**Na'e tō ki'i manioke 'a Sione**__.
PAST plant small cassava ABS (name)
T/A V [$_{NI}$ A N][Abs Nominal]
intended: *Sione planted a small amount of cassava.*

However, as (29) shows, a postnominal adjective meaning the same thing as **ki'i** can incorporate.

(29) **Na'e tō manioke iiki 'a Sione.**
PAST plant cassava small ABS (name)
T/A V [$_{NI}$ N A][Abs Nominal]
Sione planted a small amount of cassava.

So, not just function words are eliminated to achieve the verb-noun adjacency, and thus, the PRED ARG analysis clearly makes the wrong predictions about the Tongan (and

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[12] All Tongan examples are from my own fieldnotes.

possibly, by implication, Niuean as well). This empirical issue also raises questions about the validity of Massam's (2001) analysis and any other analyses that also predict that the verb-noun adjacency is merely coincidental.

Thus, the PRED ARG analysis seems both undesirable from an f-structural standpoint, where it complicates the theoretical architecture with only minimal empirical gain, and from a c-structural standpoint, where it does not quite capture the appropriate level of adjacency.

4   The Lexical Sharing analysis

Given the problems outlined above for the PRED ARG analysis, let look us to a second analysis, the Lexical Sharing analysis, and see how it might handle the facts of Niuean Pseudo Noun Incorporation. In contrast to the PRED ARG analysis and other analyses like it, the Lexical Sharing analysis is analytically centered on the c-structure.

4.1 Analysis

The Lexical Sharing analysis takes Wescoat's (2002: ch. 4) analysis of Hindi and applies it to Niuean.[13] It views verb and noun (but not the rest of the incorporated expression) as a single, morphologically created lexical item. Under this analysis, this verb + noun unit is seen as having an atypical tree geometry: this unit projects both to a V^0 and to an N^0, which can then project to higher projections. This kind of geometry, termed lexical sharing by Wescoat (2002), requires that shared nodes be adjacent (Wescoat 2002: 20), and thus this can account for why (28) is not grammatical, but (29) is.

To make the lexical sharing proposal clearer, let us look at an example. In (30) is an example of a Niuean sentence with an incorporated nominal.

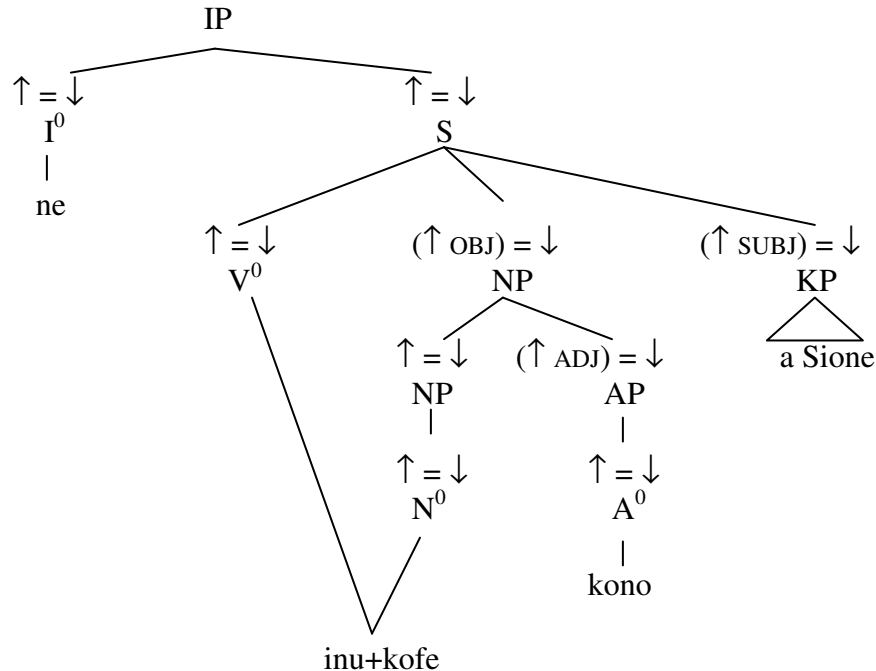(30)   **Ne   inu   <u>kofe   kono</u>   a   Mele**
       PAST   drink   coffee bitter   ABS   Mary
       T/A   V   [NI NP N   A   ][Abs NP   ]
       Mary drank bitter coffee.   (repeats (12))

Under the Lexical Sharing view,[14] the sentence in (30) has the annotated c-structure in (31).

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[13] Modulo the differences in head-directionality.
[14] And the phrase structure assumptions given in section 2.

(31)

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                        IP
           ┌─────────────┴──────────────┐
         ↑=↓                          ↑=↓
          I⁰                            S
          |              ┌──────────────┼──────────────────┐
          ne           ↑=↓          (↑ OBJ)=↓          (↑ SUBJ)=↓
                        V⁰              NP                   KP
                        |         ┌──────┴──────┐            /\
                        |        ↑=↓        (↑ ADJ)=↓      a Sione
                        |         NP            AP
                        |         |             |
                        |        ↑=↓           ↑=↓
                        |         N⁰            A⁰
                        |         |             |
                        |        (verb shares) kono
                     inu+kofe
```

In this analysis, the sequence *inu kofe* is analyzed as a single word, one that exhibits the lexical sharing structure, projecting both to the V^0 (and beyond) and to the N^0 (and beyond). The additional phrasal elements that can appear in incorporated structures are thus just c-structurally adjoined to the NP whose head is involved with the lexical sharing. Also, the Lexical Sharing analysis requires no changes with regard to the theory of valency: the verb can still take an OBJ in an incorporation structure, just as it would in an ordinary transitive sentence.

Finally, since Lexical Sharing analyzes the incorporated expression as an OBJ, under this analysis, the incorporation interpretation must come from some particular treatment of certain OBJs at σ-structure. I leave it open what the best way to do this, since this seems to be a purely semantic problem, but I do wish to mention this, since like the PRED ARG analysis, the Lexical Sharing analysis does still require some additional mechanism to properly link it to a semantic structure.

To summarize the theoretical features of the Lexical Sharing analysis, I first note that Lexical Sharing accounts for the adjacency and loss of function words facts by viewing the verb + noun as a single lexical item. Since the verb and noun form a morphological compound, the prenominal words cannot appear, due to lexical integrity assumptions. Second, Lexical Sharing's view on the morphology-syntax question is that Pseudo Noun Incorporation has elements of both morphology and syntax: a morphological verb-noun compound and syntactically adjoined modifiers. Finally, unlike the PRED ARG analysis, this analysis keeps the existing f-structure principles and f- to c-structure mapping principles, but requires a re-conception of what are permitted tree structures.

4.2 Problems

Like the PRED ARG analysis, the Lexical Sharing analysis also raises some problems, which I discuss the following section. Like my earlier discussion, I will begin with theory-internal problems and then proceed to empirical problems.

4.2.1 Theory-internal

The Lexical Sharing analysis raises some problems through its analysis of the incorporated expression as an OBJ, since there is some evidence that the incorporated expression is not an OBJ. In examples with both noun incorporation and instrumental advancement (as in (20)), there is both an applied object and an incorporated expression. In this construction, the applied object has the object properties – it has the absolutive case marking and appears in the usual object position, after the ergative KP – whereas the incorporated expression does not show any object properties. Thus, the Lexical Sharing analysis, while seeming to straightforwardly handle valency by analyzing the incorporated expression as a OBJ in examples like (31) above, runs into problems with the OBJ analysis in these more complex valency interactions.

Further problems for the view that the incorporated expression is an OBJ come from the middle object incorporation, as in (20), and the adjunction incorporation, as in (21). Here not only does the incorporated expression not have OBJ properties like case or post-ergative KP position, but it lacks the kind of semantic patient/theme role typically associated with OBJs. While it is true that these incorporated expressions have a semantic relation close to the meaning of the main predicate, it is not clear that they should be analyzed with an OBJ function or, especially in the case of adjunct incorporation, any governable grammatical function. Thus, these kinds of incorporation possibilities also pose problems for Lexical Sharing's analysis of the incorporated expression as an OBJ.

A final theoretical problem for the Lexical Sharing analysis is that it violates the Single Mother Condition, which most LFG researchers (as well as those in many other frameworks) have assumed is universal. While such an assumption has provided a useful constraint on tree structures, it seems a bit hasty to rule out structures such as (31) solely on such theoretical grounds. Thus, it would seem to be better to sort these questions out based upon empirical grounds, an area I turn to below.

4.2.2 Empirical

The Lexical Sharing analysis also faces two possible empirical challenges, although, admittedly, the evidence is not entirely clear in either direction. The first challenge comes from the fact that there is no clear phonological evidence for the verb and noun as a unit. For what it's worth, neither Seiter nor Massam write the verb and the noun as a unit.[15] However, this may reflect orthographic convention and not phonological structure. Also, Fitzgerald (2001), in her survey of noun incorporation in Oceanic languages, also claims

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[15] This orthographic decision also holds in descriptions of similar constructions in other Polynesian languages: Maori in Chung and Ladusaw 2003 and Tahitian in Lazard and Peltzer 2000.

that Niuean noun incorporation does not involve a phonological unit of any sort (in her discussion of Niuean in Appendix 1), but it is not clear from what she makes that judgment.

The second possible problem the Lexical Sharing faces is that there may not be any morphological evidence for treating the noun and verb as a single unit. Following in the discussion of Hindi noun incorporation in Mohanan 1995, a likely place to look for morphological evidence is in the ability of the verb-noun unit to nominalize. While the evidence from Niuean on this kind of nominalization is presently unknown, if subsequent investigation found that the verb and noun could not be nominalized together, and also that there was no other evidence for the verb-noun unit to be considered a morphological unit, it would be very problematic for the Lexical Sharing analysis.

So, we see from this discussion of theoretical and empirical problems that the Lexical Sharing analysis might not capture the Niuean Pseudo Noun Incorporation data either.

5   Conclusions

Having forged through the data and looked at two analyses with both promising insights and noteworthy theoretical and empirical problems, what can be concluded about Pseudo Noun Incorporation in Niuean? To return to the areas with which I sought to frame this paper in the introduction, I first want to talk about the issues of morphology vs. syntax and the issue of lexical integrity. The above discussion reveals that it is possible (twice over) to analyze this construction without violating lexical integrity. Also, due to the possibility of nominal modifiers in the incorporated expression, it seems desirable to treat this construction, at least in part, as a syntactic construction. However, although the data in this paper suggest that the simple solution of analyzing the incorporated expression as an NP appears to be problematic, the data do not resolve a second question that these two analyses bring out – whether to characterize the verb-noun adjacency as an entirely syntactic constraint (akin to the PRED ARG analysis) or as the result of a hybrid of morphological and syntactic constructions (as in the Lexical Sharing analysis). Some preliminary investigation suggests that the former might be a better solution, but more definitive evidence needs to be brought to bear on this question.

Second, in the area of valency, it seems that neither PRED ARG analysis nor the Lexical Sharing analysis captures the right generalizations. The PRED ARG analysis seems to go too far in denying that the incorporated expression has a grammatical function, in the process muddling syntactic and semantic valency, as well as committing itself to a problematic, highly syntacticized view of argument structure. The Lexical Sharing analysis, on the other hand, seems to not go far enough. It seems to present too simple of a solution, in which non-object properties of the incorporated expressions are not carefully considered. Thus, it would seem to point to the need for less extreme approach than either taken here. One possibility, as pursued by Asudeh and Ball (2005), is to introduce a new kind of grammatical function (called INCORPORATE in their paper), that interfaces with the incorporation semantics, but leaves the sentence intransitive. However, given the above discussion, it would seem crucial to any subsequent analyses

of Pseudo Noun Incorporation in Niuean to give a more sophisticated treatment of the interaction between the syntactic valency and the semantics, and, given the middle object and adjunct incorporation data, to give a more prominent role for the lexical semantics in the analysis.

Notes on Orthography and list of abbreviations

All examples are in given the practical orthography of the language of the example. The Niuean and Tongan orthographies follow the standard IPA representations of the phonemes of their respective languages except that Niuean **g** = Tongan **ng** = /ŋ/, Tongan **'** = the glottal stop, and macrons mark long vowels.

Abbreviations from interlinear glosses:
ABS = absolutive, CM = case-marking particle, COM = comitative, ERG = ergative, EMPH = emphatic, NFUT = non-future, PERF = perfect, PL = plural, Q = question particle, SJTV = subjunctive

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