

**Patterns of Phrasal Movement: The Niuean DP\***  
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**0. Introduction**

This paper examines substantive noun phrases in Niuean, a Polynesian language of the Tongic subgroup with VSO word order, isolating morphology, and an ergative case system. We describe the allowable orderings of elements in the Niuean noun phrase, which include certain variations in the placement of numerals and the genitive possessor, then we provide a phrasal movement analysis for these variations, treating first the variation in the position of the possessor, then the variation in the position of the numeral. Parallels are drawn between the derivation of nominal and sentential word order.

There has been a large quantity of work, both recent and traditional, attempting to understand why certain orders of elements in clauses seem to be universally ruled out. To account for this, some linguists have posited that there is a universal order of elements and that allowable variations on this order are derived by various movement patterns (e.g. Cinque 1996, 1999, 2002, Belletti 2004, Rizzi 1997, 2003). This position allows for the theory to rule out ungrammatical orders by universal constraints on movement, rather than by typological stipulations. Our exploration of the Niuean DP takes place in light of this type of work, as well as similar work specifically on DPs such as Cinque (2000, 2005), Coddington (2003), den Dikken (2003), Pearce (2002, 2003) and Shlonsky (2004). Given that Niuean DPs generally have a N-initial order, similarly to the V-initial order of clauses, our analysis also addresses the relation between nominal structure and sentential structure, finding striking parallels between the two phrase-types.<sup>1</sup> We observe that the required derivations involve consistent complement-to-specifier movement patterns, with two variable factors. First, in the case of filled specifiers, the movement pattern is affected in that movement to specifier is impossible, and second, we confirm a movement constraint observed by Rackowski and Travis (2000), which states that purely relational functional projections such as Agreement, which have no semantic content, are invisible to movement.

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<sup>1</sup> Note that the term N-initial, like V-initial, does not literally mean that the N is the first element in the clause, since it is preceded by functional elements such as case markers and articles (cf. tense and aspect markers in the case of V). Rather, it indicates that the N (or V) generally precedes substantive material such as arguments and modifiers.

## 1. Description of the Niuean Substantive DP

The Niuean DP is described in Seiter (1980), and in Massam and Sperlich (2000). In a DP without a possessor or numeral, the order of elements is as shown in (1).

(1) Surface Order of Elements without Possessors and Numerals<sup>2</sup>

	Case+P/C	#	Noun	Adjs	Dem
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- a. e tau manu kula fulufuluola e:  
AbsC Pl bird red beautiful Dem  
'those beautiful red birds' (Field Notes.01)
- b. e kau kaiha  
AbsC group thieves  
'a group of thieves' (Seiter 1980.100a)
- c. e falu a tagata  
AbsC some person  
'some people' (Sperlich 1997.67)
- d. e taha tagata  
AbsC one person  
'a person' (Field Notes.01)
- e. a Moka  
AbsP Moka  
'Moka' (Field Notes.97)

The first element in the nominal clause is a portmanteau morpheme, which indicates the case of the DP as well as whether it is common or proper (where proper includes pronominal). In (1a-d) this particle is *e* (absolutive common), whereas in (1e) it is *a* (absolutive proper).<sup>3</sup> This is followed by an optional marker for number, which also has classifier-like properties, as can be seen in (1a) and (1b) where a different plural marker appears depending on the nature of the noun or group. Other plural classifiers include *lafu* for a family group, *atu* for a row, and *na:* for a pair.<sup>4</sup> This marker can also have article-like properties, in that an indefinite plural NP can appear with *falu a*, as in (1c) and in the case of a singular indefinite NP, the marker *taha* or *ha* can appear in this position, as in (1d). Seiter 1980 notes that it is not clear if the *a* appearing with *falu* should be considered a ligature item or not, and here we leave it without a gloss. We will

<sup>2</sup> Abbreviations used in the glosses of this paper are as follows: Abs=Absolutive, C=Common, Dem=Demonstrative, Compl=Complementizer, Erg=Ergative, Gen=Genitive, Lig=Ligature, P=Proper, Pers=Personal Article, Pl=Plural, Pred=Predicative. Note the Plural

<sup>3</sup> This marking of the proper/common distinction runs through the entire case system in Niuean (and other Polynesian languages). For example, an ergative common DP begins with the particle *he*, and an ergative proper DP begins with the particle *e*, and in (2), the genitive proper form *ha* is used, whereas in (4), the genitive common form *he* is used. There are many interesting issues in the Niuean case/article system but we cannot explore them further in this short paper.

<sup>4</sup> The conjunction of number and classifiers is common. For discussion, see Fassi Fehri and Vinet, to appear.

refer to this complex morpheme simply as number (#) in this paper.<sup>5</sup> This morpheme is followed by the head noun, which is in turn optionally followed by one or more adjectives and a demonstrative as in (1a). (1e) shows a proper DP. The order of elements in the DP is fixed.

We next examine DPs with possessors, while DPs with numerals will be discussed in Section 4. For possessors, there are two possible orders, as shown in (2).<sup>6</sup> The first order finds the genitive case marked possessor in pre-nominal position. In this order, there is a ligature item *a* appearing between the possessor and the (#) noun, as in (2a). The second order finds the genitive marked possessor at the end of the entire DP (after the demonstrative if there is one), as in (2b).

(2) Surface Orders of Elements with Possessors (without Numerals)

a. Case+P/C	<b>Poss</b>	<b>Lig</b>	#	Noun	Adjs	Dem	
b. Case+P/C			#	Noun	Adjs	Dem	<b>Poss</b>

a'. e      ha      Sione a leo  
 AbsC   GenP   Sione   Lig voice  
 'Sione's voice' (Seiter 1980.92b)

b'. e      leo      ha      Sione  
 AbsC   voice   GenP   Sione  
 'Sione's voice/voice of Sione' (Field Notes.97)

The pre-nominal possessive construction has two particular properties distinct from the properties of the construction with the possessor at the end of the clause. First, the pre-nominal possessor gives a definiteness reading to the DP as a whole, similarly to the situation in Hebrew and Arabic (see, e.g. Ritter 1988, Shlonsky 1988, Borer 1999), as shown in (3). (3a) has a definite reading, whereas (3b), like non-possessed Niuean DPs, can be definite or indefinite.<sup>7</sup>

(3) a. ko e      haana a fale  
 Pred   his      Lig house  
 'It's his house.' [definite] (Sperlich 1997.103)

<sup>5</sup> This decision has consequences, since number is usually considered to merge low, whereas features such as definiteness are usually considered to merge high. The true nature of these markers is thus worthy of further investigation.

<sup>6</sup> Note that, as discussed in Massam and Sperlich (2000), Niuean does not exhibit the well-known alternation between dominant and non-dominant genitive forms, as found in other Polynesian languages. (For discussion, see papers in Fischer 2000).

<sup>7</sup> (3) and (4), along with other examples in this paper appear with a particle *ko*, which we gloss as 'Pred'. The function of *ko* is not uniformly represented in the translations of the sentences. Generally speaking, the particle *ko* appears before nominals which are not in an argument position (eg. moved Wh-NPs, topics, focused NPs, predicative NPs). When *ko* precedes a common NP it is followed by the particle *e* which we have not glossed separately in this paper.

- b. ko e fale haana  
 Pred house his  
 ‘It’s his house/a house of his’ (Sperlich 1997.103)

The second property of the pre-nominal possessor construction is that the pre-nominal possessor must be proper as in (2a’), or pronominal as in (3a). It is ungrammatical to have a common pre-nominal possessor (4a), although such a possessor is fine in final position, as shown in (4b).

- (4) a. \*Ko e he faiaoga a pepa  
 Pred GenC teacher Lig book  
 ‘the teacher’s book’ (intended meaning) (Field Notes.01)  
 b. Ko e pepa he faiaoga  
 Pred book GenC teacher  
 ‘the book of the teacher’ (Field Notes.01)

These properties are summarized in (5).

- (5) **Property 1:** The pre-nominal possessor gives a definiteness reading to the DP as a whole (3a).  
**Property 2:** The pre-nominal possessor must be proper or pronominal (2a’, 3a).

Given the facts described above, we will next address the following two questions: How do we derive the order of elements? How do we account for the two positions (and corresponding properties) of the possessor?

## 2. Setting the stage

Let us first turn to the question of the order of elements. One logical possibility is to assume that N is base-generated in the same place it surfaces in (2a), i.e. between the # and the Adjectives. Given the impossibility of N taking Adjectives and Demonstratives as complements, the only way to have this option is to assume a combination of right and left branching, contra Kayne's (1994) antisymmetric system, which disallows left branching complementation universally. Note that this would violate even a weaker version of an antisymmetric system, which would allow cross-linguistic variation in branching direction, but not different directions of branching within a single language or within a single phrasal category. We thus take N in (2a) to be base-generated at the end of the phrase. Next to be determined is the merge order of the other elements in the nominal phrase.

In order to address this question, let us look at some typological generalizations and see how they are accounted for by assuming a universal order of elements. The usual order of elements in the Noun Phrase was perhaps first observed by Greenberg (1966).<sup>8</sup> Greenberg’s observation is given in (6).<sup>9</sup>

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<sup>8</sup> See also Hawkins (1983).

<sup>9</sup> While it remains true that many logically possible orders are unattested, the generalization in (6) is clearly too restricted, since in fact some other orders are presented in the literature, as discussed in Cinque (2005). Since Niuean appears, for the most part,

(6) Universal 20 (Greenberg 1966:111)

“When any or all of the items – demonstrative, numeral, and descriptive adjective – precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.”

The generalization in (6) is partially summarized in (7), as proposed in Cinque (1996). Numerals are included, but we leave them aside until Section 4.

(7) Cinque (1996) (see also Cinque 2000, 2005)

- |                       |                        |          |
|-----------------------|------------------------|----------|
| a. Dem – Num – A – N  | =Base Ordering         |          |
| b. *A – Num – Dem – N | =Impossible            |          |
| c. N – Dem – Num – A  | =Noun Movement         |          |
| d. N – A – Num – Dem  | =Successive XP raising | → Niuean |

Cinque (1996) accounts for the ordering restrictions in (7) in the following manner. (7a) is the basic merge order. No movements are necessary to derive this order. The order in (7c) is the result of N-movement through phonologically null head positions.<sup>10</sup> Note that in this case, the lexical items Num, Dem, and A are assumed to be in specifier position. The mirror-image order in (7d) is the order found in Niuean. Cinque argues that this order is the result of successive XP-movement, the details of which will be thoroughly outlined below. Crucially, if the XP-movement is successive and local, and necessarily originates with and includes N, (7b) is impossible, since in this case A, Num, and Dem would have had to move independently of N. Our approach is different in technical details from that of Cinque, but the idea is the same. One technical difference, for instance, is that Cinque places the pre-nominal modifiers in Specifier positions, whereas we consider them to be Heads. Our analysis is in line with the Rackowski and Travis (2000) account of the Niuean verbal clause in these respects. See also Shlonsky (2004), who considers that some elements are heads, while others are in specifier position.

Another related fact is the order of descriptive adjectives. It has been suggested that there is a universal order of descriptive adjectives (Laenzlinger 2000, 2005, Scott 1998, Sproat & Shih 1991), given in (8).

(8) Proposed Universal Order of Adjectives

Quantification > Quality > Size > Shape > Colour > Nationality

If in a language like Niuean there is successive XP-movement to derive the mirror-image order of nominal phrases, one would expect the adjectives to appear in reverse order as well as the functional elements. This prediction is borne out in all the examples we found in texts. We saw an example of this in (1a) with 'color' and 'quality' in the opposite order. The same phenomenon is observed in (9a) for 'color' and 'size' and in (9b) for 'size' and *oti* 'all', which we take to be a quantificational adjective.

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to conform to (7) in being a fully inverse language (7d), we need not discuss the exceptions here.

<sup>10</sup> Cinque in later work (e.g. Cinque 2005) revises the analysis of the order in (7c) so that it also involves XP movement, rather than head movement, but since (7c) is not the order for Niuean we do not pursue this issue here.

- (9) a. e        letio    kula    tote  
 AbsC   radio   red    little  
 ‘the little red radio’ (Nelisi 1995.6)
- b. e        tau koloa   ikiiki        oti ia        haaku...  
 AbsC   PI   store   small(PI)   all Dem   my  
 ‘all those small stores of mine’ (de Sousa 2001.50)

In the next section, we discuss the details of how the inverse order is derived in Niuean.

### 3. Deriving inverse order

In this section we will outline how the order of elements in the Niuean noun phrase can be derived. The merge order we assume for heads is given in (10).<sup>11</sup> This order is based on a body of work on ordering of categories within the noun phrase. (For examples, see, Ghomeshi and Ritter 1996, Megerdoomian 2002, Pearce 2002, Ritter 1991, 1993, Schoorlemmer 1998, Travis 1992, among others).

(10) DP Merge Order

K	D	Poss	Dem	A	#	N
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The merge order of K and D in (10) follows standard assumptions in generative theory (see; for K, Bittner and Hale 1996 and for D, Abney 1987). Note that D is phonologically null in Niuean. Our assumption is that D contains features for the proper-common dichotomy, since these features make reference to uniqueness of identity and thus are clearly related in function to determiners. The morphology associated with these features shows up in K, rather than in D, possibly due to head or feature movement.

With respect to the Possessor (Poss) head, it has been suggested in the literature that there are two positions across languages, one lower position much closer to the noun, which is utilized, for instance, by Semitic languages and one higher one, which we suggest is the one used in Niuean. English possibly uses both positions, e.g. ‘John’s damaged car door’. Schoorlemmer (1998) outlines these two possibilities and a principal property she attributes to the languages that use the high position coincides with a key property of Niuean, namely the fact that if the possessor is definite the entire phrase becomes definite. We will return to this point below.

For the merge position of Demonstratives (Dem) and Adjectives (A), we are following Cinque as outlined above in (7). For the low merge position of Number (#), we are following Ritter (1991, 1993). (But see footnote 5 above.)

The order (2a), with the pre-nominal possessor, is derived in a manner illustrated in (11) which involves successive ‘intraposition’ or roll-up movement of complements to the empty specifiers in their shared maximal projection.<sup>12</sup> As shown in

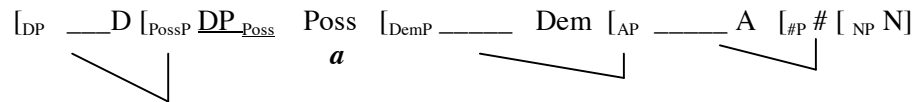
<sup>11</sup> Note that we do not assume that adjectives are adjoined, but rather that they form part of the selectional phrasal hierarchy.

<sup>12</sup> This type of movement (complement- to-specifier) has been considered illicit by some linguists. We simply note here that if we wanted to avoid such movements, we could posit a null head and specifier between each phrase, in the style of Cinque (2005) and

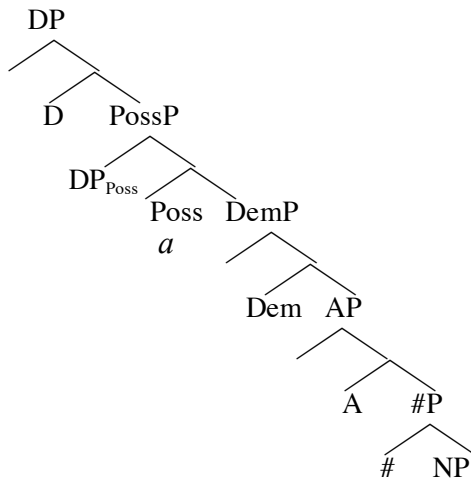
(11), the #P moves to the spec of AP, then the whole AP moves to the spec of DemP. DemP cannot move to the already filled spec of PossP and finally, in accordance with Shortest Move, PossP (and not DemP which is further away from D) moves to the spec of DP. DP does not move to specifier of KP<sup>13</sup>, hence K, which is not represented in (11), appears at the far left. In (11a) we see the overview of movement patterns, while (11b) gives the Merge tree (a hypothetical tree that never exists in the Minimalist system, in which Merge and Move are interwoven), and (11c) the surface tree.

(11) Pre-nominal possessor derivation (2a)

a. Overview of Movements



b. Merge Positions (hypothetical tree)

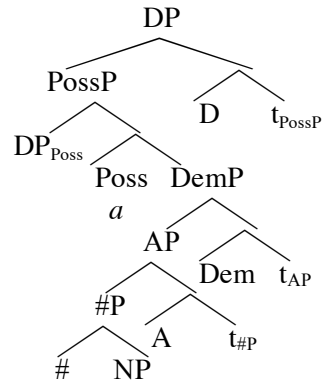



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Pearce (2002). We do not do this here (following Rackowski and Travis 2000), in part because the derivations are simpler to display without these intermediate nodes. Another question involves the motivation for such movements. We follow Cinque (2005) in assuming that there is a need for the lexical head to move to the top of the extended projection, although the nature of this requirement remains to be fully explored.

<sup>13</sup> It is not fully clear why DP does not move to the specifier of KP. This may, however, be tied to the movement of D to K, realized as a portmanteau morpheme [Case+P/C], as discussed previously. Under this view, the requirement in K that is triggering the movement is satisfied by the movement of the head D, rather than by movement of the phrasal DP.

c. Surface Tree



The question arises as to why NP does not move to the specifier of #P. This can be answered easily if # is in specifier position of #P, in which case it would block the movement of NP. This claim is supported by the fact that *valu* usually appears with an optional particle *a*, which is arguably the head of #P, and perhaps by the fact that *taha* has an alternative form *ha*, suggesting that this number marker is formed of two parts, with *ta* in specifier and *ha* in head position<sup>14</sup>. Again, in accordance with Shortest Move, #P (not NP) will move to specifier of AP.

The pre-nominal order of the possessor has two properties as discussed above and summarized in (5). The first of these is that pre-nominal possessors give a definiteness reading to the noun phrase as a whole. According to Schoorlemmer (1998), in languages with the high PossP, Poss is a potential carrier of a value for definiteness. We posit that *a* in Niuean is one such element. The Poss head, which is home to *a*, an element with semantic content, gives the whole DP the definite reading.

The second property of the pre-nominal possessor construction is that the possessor must be proper and cannot be a common noun. For this, we posit that the Poss morpheme *a* has a [proper] feature which must be shared with its specifier. This is supported by the fact that *a* is used for three other morphemes in Niuean that bear the feature proper. These three are: Absolutive proper case, as shown in (1e) and repeated in

<sup>14</sup> An anonymous reviewer considers it unlikely that *taha* is actually bi-morphemic (with *ta* in specifier and *ha* in head position), since it is not clear what each morpheme would mean, and since the cognate form in Tongan *taha* is a numeral “one”, whereas *ha* is an indefinite/nonreferential article, and they can co-occur as in *ha taha* “whatever, anyone”. We recognize the validity of *taha* as a single vocabulary item (for example it can undergo reduplication in Niuean), but leave open the possibility that in Niuean it consists of two separate feature bundles at Merge (in the sense of Distributed Morphology, cf. Halle and Marantz 1993).

(12a); Proper article in goal DPs, as shown in (12b); and Genitive proper case, as shown in (12c)<sup>15</sup>.

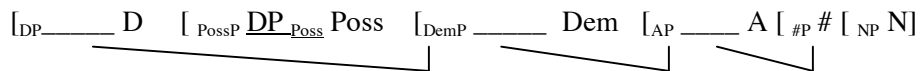
- (12) a. a Moka  
 AbsP Moka  
 ‘Moka’ (Field Notes.97)  
 b. ki a au  
 to Pers I  
 ‘to me’ (Sperlich 1997.41)  
 c. e vaka a Sione  
 AbsC canoe GenP Sione  
 ‘Sione’s canoe’ (Seiter 1980.35)

Thus we see that *a* has two roles stemming from its two features of [definite] and [proper], which are giving a definite reading to the whole DP and sharing the proper feature with the possessor.

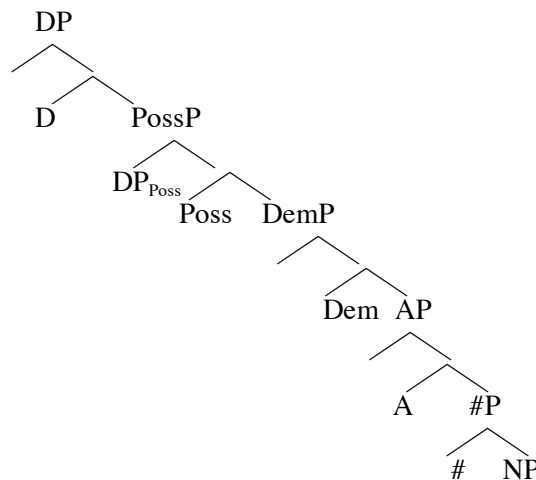
Let us now turn to the order (2b). The derivation for this order is shown in (13). Again, (13a) shows the overview of movements, (13b) shows the merge positions, and (13c) shows the surface tree.

(13) Post-nominal possessor derivation (2b)

a. Overview of Movements

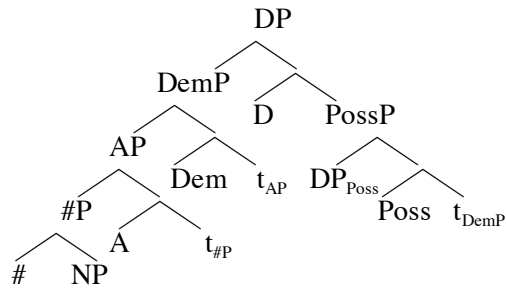


b. Merge Positions (hypothetical tree)



<sup>15</sup> Note that the GenP morpheme in (12c) is *a*, and not *ha* as given in (2a,b) above. According to Seiter (1980: 84), *a* is in variation with *ha* as a genitive proper case marker, with *a* being used more frequently by older speakers. For further discussion of the syntax of these and other morphemes across Polynesian, see Clark (1976).

c. Surface Tree



The first two movements are exactly the same as (11): #P to spec of AP and AP to spec of DemP. The only difference here is that there is no *a* in Poss. To get the right order, we need the whole DemP to move over PossP to the spec of DP, as shown in (13). The question remains, however, as to *why* in (13) DemP, rather than PossP, moves to spec of DP. Recall that in (11), it was PossP that moved, which is expected under some version of relativized minimality or shortest move. To explain the phenomenon in (13), we make use of an idea in Rackowski and Travis (2000), where they derive the order of adverbs in Malagasy and Niuean from Cinque's (1999) universal order of adverbs. Let us look at their analysis briefly.

Their derivation for the Niuean verb phrase is given in (14). The relevant phrases are Direction Phrase (DirP), Manner Phrase (ManP), Aspectual Adverb Phrase (AspP), Agreement Phrases for subject and object (AgrS and AgrO), and Question Phrase (QP).<sup>16</sup> As in (11) and (13) above, (14a) shows the overview of movements, (14b) shows the Merge positions, and (14c) shows the surface tree. We abstract away from the issue of whether the subject and object DPs are merged in, or move to, their respective Spec/Agr positions.

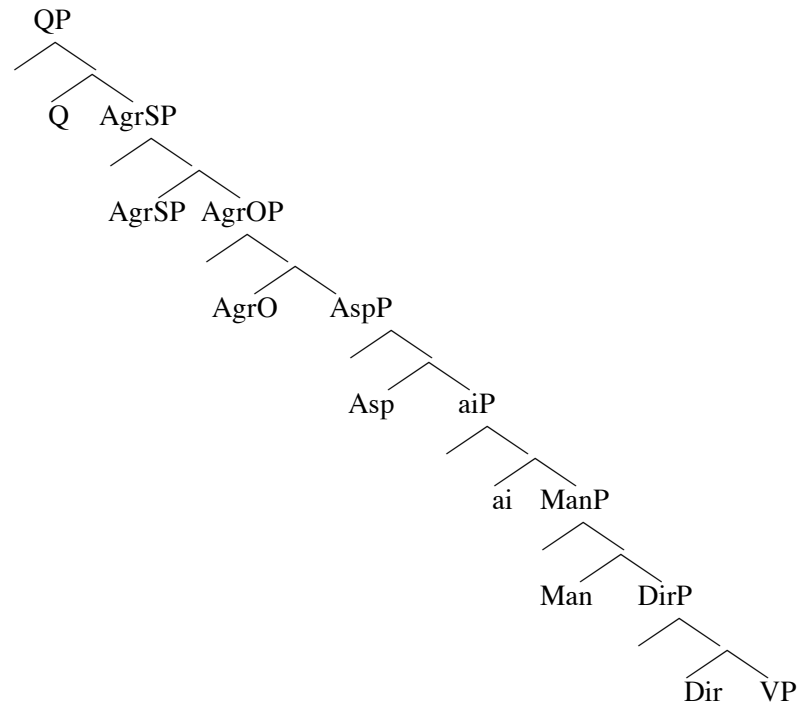
(14) Niuean clausal derivation (adapted from Rackowski & Travis 2000)

a. Overview of Movements

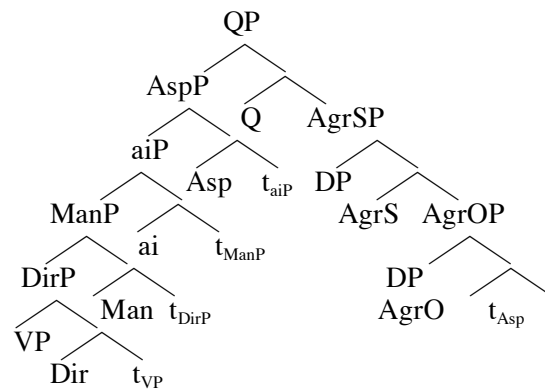


<sup>16</sup> The particle system in Niuean is rich and complex. For more information on the particles, see Rackowski and Travis (2000), Seiter (1980), or Massam (2000a).

b. Merge Positions (hypothetical tree)



c. Surface Tree



Note the striking parallel between (14) and (13), both of which essentially involve the same series of movements. Thus, in (14), VP moves to spec of DirP, DirP moves to spec of ManP, and so forth. Crucially, when the movement sequence gets to the AgrO and AgrS phrases with arguments in their specifiers, they are skipped and they cannot themselves move. To account for this fact, Rackowski and Travis suggest a restriction on movement given in (15).

(15) Rackowski & Travis (2000:127)

“To avoid this ungrammatical derivation, there must be a restriction in the grammar such that non-contentful phrases like AgrP are invisible to movement

and cannot themselves move. In contrast to this, contentful phrases like AdvPs can and, in this case must, move.”

The restriction is that non-contentful phrases like AgrP are invisible to movement and cannot themselves move. We suggest that the same restriction is in place for PossP in (13). This seems plausible, given the oft-noted parallels between AgrP and PossP (see discussion in Stowell 1983, Abney 1987, and many subsequent authors), both of which introduce the phrasal subject, and both of which represent an open relation rather than bearing an element with interpretable semantic content.<sup>17</sup> In fact, we seem to have come across a striking example to support their proposal here, since we have a head that is contentful in one case and non-contentful in the other. When it is non-contentful as in (13), it is skipped and cannot itself move. In (11), on the other hand, the Poss head is contentful; it contains the interpretable feature [definite] realized by *a*. In this case, as predicted by Rackowski and Travis, the PossP moves which results in the pre-nominal possessor order.<sup>18</sup>

#### 4. Numerals

As well as variation in word order of possessors, Niuean exhibits variation in word order of numerals. Given what we have proposed for Niuean, we expect an inverse order for numerals compared with adjectives and demonstratives: [N - Adjective - Numeral – Demonstrative], as outlined in (6) from Greenberg (1966) and also discussed in Cinque (1996, 2000, 2005). Let us consider how numerals actually do behave in Niuean.

In fact, in Niuean, numerals are found both preceding and following the noun, as shown in (16). When numerals precede the noun as in (16a), a ligature item *e* appears between the numeral and the noun, similarly to pre-nominal possessors. The order of the other elements remains the same.<sup>19</sup>

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<sup>17</sup> An anonymous reviewer points out that in some cases Poss appears to bear content, rather than being like an Agr node (Barker 1995). For example, in Mayan, there is an intricate system of morphemes indicating the alienable/inalienable status of the possessor (Lehmann 1998). Similarly, closer to home for Niuean, in other Polynesian languages the genitive marker indicates whether the possessor is dominant over the possessed item or not (Fischer 2000), a relational concept which might involve features in the Poss head. In Niuean, however, there is no indication that the possessive head bears semantic features. The issue comes down to whether there are indeed heads whose function is to allow for a more-or-less thematically empty relation of predication to hold between an element in their specifier and complement positions, which are distinct from Focus phrases, Topic phrases and etc. The view in this paper is that there are such heads.

<sup>18</sup> See den Dikken (to appear) for a different approach to word order and to linking items.

<sup>19</sup> In some cases, consultants indicate a preference for there to be no # marker if there is a numeral, but it is clear that there is no outright constraint on the co-occurrence of these elements, since many examples exist where they do co-occur, as in (ia,b).

- (i) a. ke he tokoua e na: tagata Manu'a ko Ve'u mo Ve'a  
 about two Lig Dual person Manu'a Pred Ve'u and Ve'a  
 ‘about two Manu’an men, Ve’u and Ve’a. (Niue: A History of the Island)
- b. e tau tupua tokolima  
 AbsC Pl tupua five  
 ‘the five tupua’ (=ancient legendary creature) (Niue: A History of the Island)

In case of post-nominal numerals, the ligature item does not appear. We have left possessors out of (16) for now, but will return to them below. Note when counting humans, the prefix *toko* appears on the numeral, which is sometimes written as part of the numeral, or with a hyphen (16a'), and sometimes written as a separate word (16b').

(16) Orders of Elements with Numerals (without Possessors)

a. Case+P/C	<b>Num</b>	<b>Lig</b>	#	Noun	Adjs		Dem
b. Case+P/C			#	Noun	Adj	<b>Num</b>	Dem

a'. *toko-lima e tagata loloa*  
 Pers-five Lig person tall  
 'five tall people' (de Sousa 2001:33)

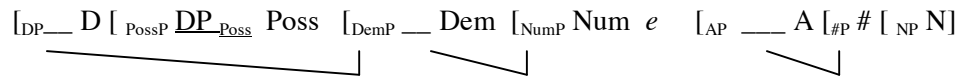
b'. *Maori toko ua*  
 Maori Pers three  
 'three Maoris' (Blanc and Togakilo 1965)

Numerals can co-occur with possessors. The most commonly found construction with both a numeral and a possessor is one where the numeral precedes the noun and the possessor follows it, as exemplified in (17).

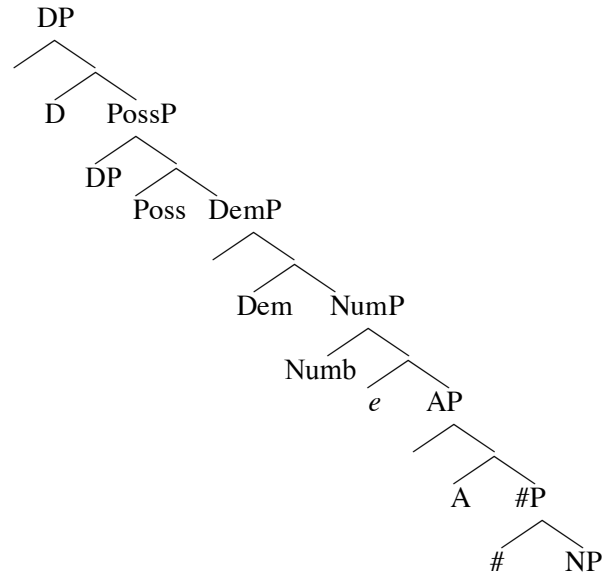
(17) *Ko e toko fa: e tama a Matakuhifi*  
 Pred Pers four Lig boy Gen Matakuhifi  
 'Matakuhifi's four sons' (Blanc and Togakilo 1965)

In deriving these orders, let us consider first the pre-nominal numeral order in (16a) and (17). If we take the base order to be that assumed by Cinque (1996), namely [Dem Numeral Adj N], the order in (16a) and (17) can be derived in a straightforward manner. (The examples given here happen not to include a demonstrative or # marker.) As in the derivations above, (18a) shows the overview of movements, (18b) shows the Merge positions, and (18c) shows the Surface tree.

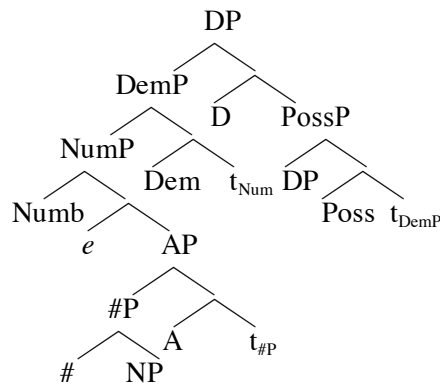
(18) a. Overview of Movements



b. Merge Positions (hypothetical tree)



c. Surface Tree



First, the #P moves to the specifier of AP, just as in all the derivations so far. At this point, it is not possible to move the AP into the specifier of NumP, because this position is filled by the Numeral, while the head of NumP is filled by the particle *e*. Instead, following Shortest Move, the NumP is moved to the specifier of DemP. This movement exactly parallels the movement in (11) of PossP to DP, in place of movement of DemP to PossP, the latter of which is similarly blocked by a full specifier position. Then, the derivation proceeds as does that in (14), to yield the order in (16a) and (17) where the numeral is pre-nominal. This derivation yields a post-nominal possessor and a pre-nominal numeral as in (17).

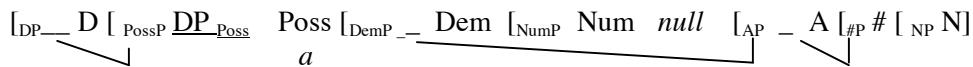
In Niuean, each of the possessor and the numeral can appear pre-nominally. (2a') shows a pre-nominal possessor and (16a') shows a pre-nominal numeral. It is unclear

whether both the possessor and the numeral can be pre-nominal in the same phrase, because there is a strong tendency on the part of speakers to avoid having more than one such element on one or the other side of the noun. Similarly, it is unclear whether both the possessor and the numeral can be post-nominal. A pre-nominal possessor and a post-nominal number is also unattested in our data. We leave this question open, pending future fieldwork.

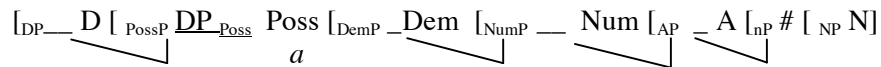
Let us now address the post-nominal numerals, as in (16b). Note that there is no ligature item *e* in these cases. Our analysis of nominal movements laid out in this paper might predict that in such a situation, NumP will resist movement, as PossP did in (13) to yield a word order [Poss # N A Dem Num], which is not what is found, since numerals precede demonstratives in Niuean, as schematized in (16b). (For an example, see (20).) This incorrect derivation is shown in (19a). A solution lies in the analysis of numerals as heads in such cases (see Shlonsky 2004). If this position is tenable, the correct derivation results, as shown in (19b). Thus, Num is a head unless the head is filled with the ligature item *e*, in which case Num is merged in specifier position instead of head position. As noted above, we have not come across any examples with both number and possessor on the same side of the noun, thus we assume in (19) that the possessor head is filled with the ligature item *a*, and that the final order will be [Poss # N A Num Dem], though, as noted above, such examples with pre-nominal possessor and post-nominal numerals are also unattested in our data set to date.

(19)

a. An incorrect prediction



b. A correct derivation



This derivation yields the word order [Poss # N A Num Dem]. The important question is, does Niuean conform to the Greenberg generalization that when numerals are post-nominal, they follow adjectives? In most examples adjectives and numerals do not co-occur post-nominally, because, as just discussed, there is a strong preference to avoid having strings of multiple nominal ‘modifiers’ (in the loose sense, including numerals and possessors). Thus, when a noun is modified by both a possessor or adjective and a numeral, one or other of them is usually found pre-nominally, while the remaining one is found post-nominally, as in (16a’) and (17). This is true of most of the natural examples we have found in texts. However, (20) shows that a numeral and an adjective can both follow the noun. In this example, the numeral follows the adjective post-nominally, in accordance with Greenberg’s generalization.<sup>20</sup>

<sup>20</sup> In elicitation, the order [Numeral A] is also accepted as in (i.a,b).

- (i) a. e      tau manu    ua      kula    fulufuluola    e:  
 AbsC    Pl    bird    three    red    beautiful    Dem  
 ‘those three beautiful red birds’ (Field Notes 2001)

- (20) e    tau    tagata            matakutakuina    toko-lima    na:  
 AbsC Pl    man            awesome            Pers-five    Dem  
 ‘These five awesome men’ (Niue: A History of the Island)

In addition to the uses above, Niuean numerals can also function as sentential predicates as in (21).

- (21) Valu    [e    hui    he    feke]  
 eight    AbsC    leg    GenC    octopus  
 ‘The legs of the octopus are eight.’ (Sperlich 1997)

In this function, numerals often modify noun phrases as predicates within a relative clause modifier, as in (22). This serves as another strategy to avoid pile-up of modifiers in the noun phrase, and is common when there are multiple modifiers, as in (22), and also in (23) from de Sousa (2001).<sup>21</sup>

- (22) motu    ikiiki    mo e    tokolalo    ne    fa:  
 island    small    and    sandy    Compl    four  
 ‘four small and sandy islets’ (lit. ‘small and sandy islets that are four’) (Blanc and Togakilo 1965)

- (23) Fiamanako    au    ke    sela e    tau koloa    ikiki    oti ia    haaku  
 want            I    Compl    sell AbsC    Pl    store    small    all    Dem    my  
 ne    lima    i    Niue    ne    mai    e    Sione  
 Compl    five    Loc Niue    Compl    give    ErgP    Sione  
 ‘I want to sell all those five small shops of mine in Niue which I have inherited from Sione.’ (de Sousa 2001.50)

- 
- b. tau ika    ua    lalahi    e:  
 Pl    fish    two    big    Dem  
 ‘these two big fish’ (de Sousa.2001.35)

The status of this order needs verification, however. Cinque (p.c.) suggests the adjectives here may be predicative. We note that it can be derived by movement of NP to specifier of A, then movement of the same NP to specifier of Num, followed by movement of NumP to specifier of Dem. Similar movement variations are discussed in Cinque (2005), while Pearce (2002, 2003) and Coddington (2003) discuss similar word order variations in Maori.

<sup>21</sup> Examples such as (22) and (23) with a relative clause modifier, and examples with a PP argument, as in (23), along with deverbal nominal clauses (described in Seiter 1980 and Massam 2000b) raise further questions about word order in Niuean nominal phrases. Our assumption here is that such arguments are generated high (Kayne 2001), and that movement occurs over them so that they end up on the right of the clause. For some discussion, see Cinque (2005). A further question for nominal structure in Niuean, as noted by an anonymous reviewer, is ‘Raising to Possessor’, i.e. the Genitive Relative Construction in Niuean (Seiter 1980, Herd, Massam, and MacDonald 2005). We leave these issues for future research.

In this section we have seen that numerals can occur both pre-nominally and post-nominally, and that these orders can be derived in a simple manner which conforms to our movement algorithms, provided we allow for numerals to be either heads or specifiers, in the latter case, with *e* as head. Some questions arise as to the ways in which numerals and possessors can co-occur. In particular, available data are unclear first as to whether both numerals and possessors can occur pre-nominally or post-nominally, since there is a clear preference to avoid having the two expressed together on the same side of the noun, and second as to whether a pre-nominal genitive can co-occur with a post-nominal number.

## 5. Conclusion

Following leading ideas of Cinque (1996, 2000, 2005), we have presented a roll-up complement-to-specifier analysis of Niuean DPs that derives the correct word orders and accounts for the variation in position and properties of possessors, and for the variation in position of numerals. Having a filled specifier affects the pattern of movement. In addition, we have claimed, following Rackowski and Travis (2000), that the change in pattern of movement that is seen in some cases in Niuean is tied to the content of functional heads. If the head is filled, movement of the phrase is possible, but if the head is phonologically and semantically empty, the phrase does not move.

## References

- Abney, Steven 1987 *The English Noun Phrase in its Sentential Aspect*. Ph.D. diss., MIT.
- Barker, Chris 1995 *Possessive Descriptions*. Stanford CA:CSLI Publications.
- Belletti, Adriana (ed.) 2004 *Structures and Beyond – The Cartography of Syntactic Structures*. Vol 3. Oxford: Oxford University Press.
- Bittner, Maria and Ken Hale 1996 The Structural Determination of Case and Agreement. *Linguistic Inquiry*, 27: 1-68.
- Blanc, R. R. V. (and Togakilo - translator) 1965 *Ne Toka Hifo e Kuki e Higoa Haana he Tau Aelani*. [Captain Cook Leaves his Name in the Islands] Islands Education Division, Dept. of Education, Wellington, New Zealand.
- Borer, Hagit 1999 Deconstructing the Construct. In *Beyond Principles and Parameters*, Kyle Johnson and Ian Roberts (eds.), 43-89. Dordrecht: Kluwer Publishing.
- Cinque, Guglielmo 1996 The Antisymmetric Programme: Theoretical and Typological Implications. *Journal of Linguistics*, 32: 447-464.
- 1999 *Adverbs and Functional Heads: A Cross-linguistic Perspective*. Oxford: Oxford University Press.
- 2000 On Greenberg's Universal 20 and the Semitic DP. *The University of Venice Working Papers in Linguistics*, 10.2: 45-61.
- (ed.) 2002 *The functional structure of DP and IP – The Cartography of Syntactic Structures*. Vol.1. Oxford: Oxford University Press.
- 2005 Deriving Greenberg's Universal 20 and its Exceptions. *Linguistic Inquiry* 36:315-332.

- Clark, Ross 1976 *Aspects of Proto-Polynesian*. Auckland, Linguistic Society of New Zealand.
- Coddington, Anna 2003 DP Internal Movement in Maori. Ms. University of Auckland.
- den Dikken, Marcel 2003 *The Structure of the Noun Phrase in Rotuman*. LINCOS Studies in Austronesian Linguistics 05, München, Germany.
- To appear *Relators and Linkers: The Syntax of Predication, Predicate Inversion and Copulas*. Cambridge: MIT Press.
- Fassi Fehri, Abdelkader and Marie-Thérèse Vinet To appear Distribution of Number and Classifier in Arabic and Chinese and Parameterization. *Linguistic Research 9.1*. IERA Publications. Rabat.
- Fischer, Steven (ed.) 2000 *Possessive Markers in Central Pacific Languages*. Thematic volume of *Language Typology and Universals*, 53.3/4,
- Ghomeshi, Jila, and Elizabeth Ritter 1996 Binding, Possessives, and the Structure of DP. In *Proceedings of NELS 26*, K. Kusumoto (ed), GLSA, University of Massachusetts.
- Greenberg, Joseph 1966 *Language Universals: With Special Reference to Feature Hierarchies*. The Hague: Mouton.
- Halle, Morris & Alec Marantz 1993 Distributed Morphology and the Pieces of Inflection. In *The View from Building 20*, Kenneth Hale and S. Jay Keyser (eds.), 111-176. Cambridge: MIT Press.
- Hawkins, John A. 1983 *Word Order Universals*. New York: Academic Press.
- Herd, Jonathon, Diane Massam, and Catherine Macdonald 2005 Genitive Relative Constructions in Polynesian. In *Proceedings of the 2004 Canadian Linguistics Association Annual Conference*, ed. Marie-Odile Junker, Martha McGinnis and Yves Roberge, 12 pages.  
<http://www.carleton.ca/~mojunker/ACL-CLA/>
- Kayne, Richard 1994 *The Antisymmetry of Syntax*. Cambridge: MIT Press.
- 2001 Prepositions as Probes. Ms. New York University.
- Laenzlinger, Christopher. 2000 French Adjective Ordering: Perspectives on DP-internal Movement Types. *Generative Grammar in Geneva 1*, 55-104.
- 2005 French Adjective Ordering: Perspectives on DP-internal Movement Types. *Lingua* 115:645-689.
- Lehmann, Christian. 1998. *Possession in Yucatec Maya Structures - functions - typology*. Unterschleissheim: Lincom Europa. (LINCOS Studies in Native American Linguistics, 4
- Massam, Diane 2000a VSO is VOS: Aspects of Niuean Word Order. In *The Syntax of Verb Initial Languages*, Andrew Carnie and Eithne Guilfoyle, (eds.) 97-117, Oxford: Oxford U. Press.
- 2000b Niuean Nominalization. In *Proceedings of AFLA 7: The seventh meeting of the Austronesian Formal Linguistics Association*. Marian Klamer, (ed.) Vrije Universiteit, Amsterdam. pp. 121-132.
- Massam, Diane and Wolfgang Sperlich 2000. Possession in Niuean. In *Possessive Markers in Central Pacific Languages*. Thematic volume of *Language Typology and Universals*. Steven Fischer (ed.), 53.3/4, 281-292.
- Megerdoomian, Karine. 2002 Beyond Words and Phrases: A Unified Theory of Predicate Composition. Ph.D. diss., University of Southern California.
- Nelisi, Lino. 1995 *Ko e Letio Kula*. Wellington: Ministry of Education.

- Niue: A History of the Island*, 1982 edited by the Institute of Pacific Studies of the University of the South Pacific. The Government of Niue.
- Pearce, Elizabeth 2002 DP Structure and DP Movement in Maori. Paper presented at COOL5, University of Canberra, Australia (ms. Victoria University of Wellington).
- Pearce, Elizabeth. 2003 Phrasal movement within the Maori DP. *Digests of Selected Papers Presented at AFLA X*. University of Hawai'i at Manoa Working Papers in Linguistics 34.2. pp. 41-42.
- Rackowski, Andrea and Lisa Travis 2000 V-initial Languages: X or XP Movement and Adverb Placement. In *The Syntax of Verb Initial Languages*. Andrew Carnie and Eithne Guilfoyle (eds.) 117-142. Oxford: Oxford University Press.
- Ritter, Elizabeth 1988 A Head Movement Approach to Construct-State Noun Phrases. *Linguistics*, 26, 909-929.
- Ritter, Elizabeth 1991 Two Functional Categories in Noun Phrases: Evidence from Modern Hebrew. In *Perspectives on Phrase Structure: Heads and Licensing*. Susan. D. Rothstein (ed.) 37-62. Syntax and Semantics 25. New York: Academic Press.
- Ritter, Elizabeth 1993 Where's Gender? *Linguistic Inquiry*: 24.4: 795-803.
- Rizzi, Luigi 1997 The Fine Structure of the Left Periphery. in Liliane Haegeman (ed.) *Elements of Grammar*, 281-337. Dordrecht: Kluwer Publishing.
- (ed.) 2003 *The Structure of CP and IP – The Cartography of Syntactic Structures*. Vol. 2. Oxford: Oxford University Press.
- Schoorlemmer, Maaïke 1998 Possessors, Articles and Definiteness. In *Possessors, Predicates and Movement in the Determiner Phrase*, 55-86. Artemis Alexiadou and Chris Wilder (eds.) Amsterdam: Benjamins.
- Scott, Gary-John 1998 Stacked Adjectival Modification and the Structure of Nominal Phrases. *SOAS Working Papers in Linguistics and Phonetics*, Vol. 8, 59-89.
- Seiter, William 1980 *Studies in Niuean Syntax*. New York: Garland Press.
- Shlonsky, Ur 1988 Government and Binding in Hebrew Nominals. *Linguistics*, 26: 951-976.
- Shlonsky, Ur 2004 The Form of Semitic Noun Phrases. *Lingua* 114.12: 1465-1526.
- de Sousa, Hilario 2001 Noun Phrase Structure and the Case Marking System in Niuean. ms. University of Auckland.
- Sperlich, Wolfgang 1997 *Tohi Vagahau Niue/Niue Language Dictionary*. Honolulu and Alofi: University of Hawai'i Press and the Government of Niue.
- Sproat, Richard & Chilin Shih 1991 The Cross-linguistic Distribution of Adjective Ordering Restrictions. In *Interdisciplinary Approaches to Language. Essays in Honor of S. Y. Kuroda*. Carol Georgopolous & Roberta Ishihara (eds.), 565-593. Dordrecht: Kluwer Publishing.
- Stowell, Tim 1983 Subjects Across Categories. *The Linguistic Review* 2.3 285-312.
- Travis, Lisa 1992 Inner Tense with NP: the Position of Number. *CLA Proceedings*. University of Toronto Working Papers in Linguistics. 329-346.