

Reefs–Santa Cruz as Oceanic: Evidence from the Verb Complex

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Recent research has shown that the long-standing assumption that the Reefs–Santa Cruz languages have a non-Austronesian substrate is unlikely to be valid: the languages do show regular sound correspondences with Proto-Oceanic (Ross and Næss 2007), and the alleged noun classes cannot felicitously be analyzed as such (Næss 2006). This paper addresses the third argument given in previous work for a non-Austronesian substrate: the complex verb structures. Presenting data from both Natügu (Northern Santa Cruz) and Äiwoo (Reefs), we show that while some of the verb morphology has clear cognates in Proto-Oceanic, other parts can be understood as deriving from an earlier productive process of verb serialization followed by reduction of the forms found in such serialized constructions. Given that both verb serialization and grammaticalization of elements of serializing constructions are well known in Oceanic languages, this leaves no linguistic evidence for a non-Austronesian substrate in Reefs–Santa Cruz.

1. INTRODUCTION. The considerable complexity of verb structure in the Reefs–Santa Cruz (RSC) languages has been taken to indicate that the languages are of non-Austronesian origin. The languages of Santa Cruz in particular show a striking complexity in the verb, with a wide array of possible elements being combined into a single inflected verb form, though even in Äiwoo (Reefs), where the system is rather simpler, long and complex verb forms are by no means unusual. For example:¹

- (1) NATÜGU
Na-yapwä-ti-pä-ëpwä-ngö-bë-me-le ba-dö.
IRR-tell-TR-out-true-APPL-hither-2MIN.SBJ-3MIN.O DAT-3AUG
'You should truly proclaim it to them.'
- (2) ÄIWOO
Ba li-po-to-ute-mä-dä=gu.
NEG 3AUG.S-go-go.in-again.ITR-DIR:1-any=NEG
'None of them came back.'

Wurm (1985:964) claims that these verb structures “show formal and functional agreements with verb systems in Papuan languages spoken further west” and argues that the presence of Austronesian morphological elements in what he sees as a fundamentally un-Austronesian verb structure indicates a non-Austronesian substrate with considerable

borrowing from one or more Austronesian languages. This is one of three arguments that have been advanced for a non-Austronesian origin of the RSC languages; the other two are the lack of identifiable regular sound correspondences with other Austronesian languages (Wurm 1970 and later publications) and the alleged presence of one or more noun class systems in the RSC languages (Wurm 1981).

Recent research, however, has questioned the validity of the latter two arguments. Næss (2006) shows that what has been called “noun classes” in Äiwoo (Reefs) are in fact better described partly as a system of nominalizing prefixes to verbs, partly as resulting from the fact that nouns lose their reflex of the Austronesian article *na in compounds. Ross and Næss (2007) show that regular sound correspondences can indeed be established, and suggest that the RSC languages together with the languages of nearby Utupua and Vanikoro form a first-order subgroup of Oceanic. This supports the claim made by La Fontinelle (1974) and Lincoln (1978) that the RSC languages are in fact of pure Oceanic origin, as well as matching the results of archaeological investigations that show very early Lapita settlement in the Reefs–Santa Cruz area. (The Lapita cultural complex is assumed to be associated with the Austronesian expansion.)

In this paper we will address the third property that has been claimed to indicate a non-Austronesian origin for the RSC languages: their complex verb structures. We will show that a large proportion of this complexity can be accounted for by an analysis that assumes many of the bound morphemes in RSC verbs to have arisen from the gradual grammaticalization of serial verb constructions. Such constructions—and grammaticalized structures based on them—are common throughout the Oceanic family, and therefore the complex verb structures of Reefs–Santa Cruz cannot be seen as an argument that the languages have a non-Austronesian origin.

2. THE REEFS–SANTA CRUZ LANGUAGES

2.1 LANGUAGE SITUATION AND SPEAKERS. The Reefs–Santa Cruz languages are spoken in the Santa Cruz archipelago, some 390 km east of the main Solo-

1. We have to some extent standardized the orthographies so that the same characters, where possible, are used for both Äiwoo and Natügu. Rather than the consonant symbols used for certain vowels in the current Natügu orthography, we have used vowels with diacritics for better readability. We use *ä* to represent [æ] and *â* to represent [ɔ] in both languages; the latter sound was written *o* in Wurm’s original orthography for Natügu. We write the palatal affricates as *j* (Wurm wrote it as *dy*). In Natügu, *ö* represents [ø], and *ë* represents schwa; these two phonemes are not found in Äiwoo. Nasalization in Natügu is represented by a straight apostrophe following the vowel.

Abbreviations used in glosses follow the Leipzig Glossing Rules, except for the following nonstandard abbreviations: AUG, augmented number; CONJ, conjunction; DEIC, deictic particle; DETR, detransitivizer; DIR, directional; HAB, habitual; INTJ, interjection; INTS, intensifier; MIN, minimal number; OBL.PRO, oblique pro-form; PCLF, possessive classifier; PH, phasal aspect; PREF, prefix (precise function unclear); PREP, preposition; RDP, reduplication; RL, realis; SPEC, specific; STR, semi-transitive; SUBR, subordinator; TAM, tense-aspect-mood marker; UA unit-augmented number.

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mon Islands chain. On the largest island of the archipelago, Santa Cruz or Nedö, current classification (Gordon 2005) recognizes two languages: Santa Cruz or Natügu, with a few thousand speakers in the northern and western parts of the island, and Nagu, a highly endangered language with perhaps 200 remaining speakers in a small area on the south-east coast. Dialectal variation within Natügu is great, and the southwestern variety, Nea or Nalögo, differs from the variety spoken around Graciosa Bay on so many points that it is in the process of being reclassified as a distinct language (Zimmerman and Boerger n.d.).

About 70 km northeast of Santa Cruz lie the Reef Islands, where the Äiwoo language (also known in the literature as “Reefs” or “Aÿiwo”) is spoken. Äiwoo is clearly related to the Santa Cruz languages and is classified with them in the Reefs—Santa Cruz language group. Though Äiwoo and the Santa Cruz languages show a number of structural parallels, they are not mutually intelligible, and the lexical differences are considerable. Such lexical differentiation coupled with structural parallelism seems to be an areal feature; a similar relationship is reported between the three languages of Vanikoro, southeast of Santa Cruz (François 2006), as well as between the languages of the Banks and Torres Islands in northern Vanuatu, about 250 km south of the Santa Cruz archipelago (François forthcoming).

In addition to the RSC languages, the geographical area of Temotu Province is home to three Polynesian outliers: (a) Vaeakau-Taumako (Pileni) in the outer Reef Islands and in the Duff Islands to the north of the Reefs, (b) Tikopia, and (c) Anuta, both spoken on the small islands of the same names on the southeastern margins of the region. Southeast of Santa Cruz, the islands of Utupua and Vanikoro have historically had three languages each, though a single language now dominates each island (Aba on Utupua, Teanu on Vanikoro), with the remaining languages reduced to a few speakers each.

Traditionally, there was a considerable amount of contact and multilingualism, with the Polynesians in the Reef and Duff islands building large sea-going canoes and taking them on commercial voyages throughout the area, linking the islands together in a complex trade network (Davenport 1968, Næss and Hovdhaugen forthcoming). Nowadays, the main language of intergroup communication throughout Temotu is Solomon Islands Pijin, although English is the national language of the Solomon Islands. All of this contributes to the great pressure toward change experienced by the vernaculars of Temotu Province today (Boerger 2007).

The data on which this paper is based come from Äiwoo and Natügu, the two largest of the RSC languages. Äiwoo data was collected by Næss during a total of about five months of fieldwork with native speakers in Honiara and the Reef Islands in 2004–05. In addition, some of the original data collected by Stephen Wurm and stored in the University Archives at the Australian National University, Canberra, has been consulted. Additional texts collected in the Reef Islands have been generously made available to us by John Rentz, who lived in the islands from 1986 to 1994. The Natügu data is based on textual and lexical material collected by Boerger during fieldwork spanning fifteen years between 1987 and 2006, while working as a Natügu Language Project advisor, based in Bënwë village, on Graciosa Bay, Santa Cruz Island.

2.2 BASIC GRAMMATICAL PROPERTIES. As mentioned above, Äiwoo and Natügu show a number of similarities in their basic grammatical structures. In this brief overview we will focus mainly on properties of the verb complex as being most directly relevant to the theme of the paper.

Both languages have pronoun systems organized according to a minimal-augmented pattern, though with differences in number distinctions. A minimal-augmented system resembles a system of inclusive vs. exclusive first person dual/plural in that it distinguishes between ‘you and I’ vs. ‘I and others’. However, in a minimal-augmented system, the category ‘you and I’ functions as a basic person category of the system, on a par with first, second, and third persons; it is referred to as the “1st+2nd” person, and may be “pluralized” in the same manner as the other person categories. The terms “singular” and “plural” do not quite fit this type of system, however: the 1st+2nd person category has no “singular,” because it refers minimally to two people. Instead, the number category that refers to the minimal number of people required to instantiate the person category—one in the 1st, 2nd, and 3rd persons, two in the 1st+2nd person—is given the label “minimal number.” The number category referring to more than the minimal number is called “augmented number.”

The Santa Cruz languages have only these two number categories, giving the paradigm of independent pronouns for Natügu and Nalögo as shown in table 1 (with secondary verbal suffixes/genitive suffixes bolded). The independent pronouns consist of a base *ni-* plus person-indexing suffixes that also occur on genitives and possessive classifiers, and as subject suffixes to verbs immediately following the applicative suffix *-ngö*. Wurm (e.g., 1978:973) analyzed these pronouns as reductions of the verb *ngini* ‘be’ in Natügu plus the possessive suffixes. This analysis is probably accurate diachronically, as confirmed by the possibility of inserting the completive aspect suffix between the base and the person ending, as in *ni-pe-de* ‘he has become...’. However, synchronically, these function as pronouns, with no particular salience of the ‘be’ verbal element, and will be glossed as single forms.

With the exception noted above, that is, immediately following the applicative *-ngö*, person and number of subjects and objects are marked by the suffixes in table 2. The third person augmented is a bipartite form with a mandatory prefix in addition to the suffix.

Compared to the Santa Cruz languages, Äiwoo has a third number category, the so-called unit-augmented number, referring to minimal number plus exactly one, which gives the pronoun paradigm in table 3. Again, the pronouns can be segmented into a base *i(u)-* plus person-indexing suffixes that also occur on possessive classifiers and as subject suffixes on transitive verbs; the *-ne/-nā* in the third person minimal forms are most likely the proximal/distal deictic clitics, which can also attach to the other pronouns, but which

TABLE 1. NATÜGU AND NALÖGO INDEPENDENT PRONOUNS

	Natügu		Nalögo	
	MINIMAL	AUGMENTED	MINIMAL	AUGMENTED
1	ninge ~ ningä	nigö	ninu	nigom
1+2	nigi	nigu	nigi	nigo
2	nimü	nimu	nimwü	nimwi
3	nide	nidö	nide	nigö

appear to be obligatory in the 3rd person minimal. In contrast to Natügu, there is no attested evidence of an independent verbal status for the base element in Äiwoo.

Äiwoo distinguishes formally between transitive and intransitive verbs, marking intransitive subjects by prefixes to the verb, while transitive subjects, and in some cases objects, are marked by suffixes:

- (3) ÄIWOO
- | | | |
|---|--|--|
| <p>a. i-ku-wä
1MIN.S-IPFV-go
'I go'</p> | <p>b. mi-ku-wä
2MIN.S-IPFV-go
'you go'</p> | <p>c. ku-lu-pwä
IPFV-3AUG.S-go
'they go'</p> |
|---|--|--|
- (4) ÄIWOO
- | | |
|---|---|
| <p>a. ki-togulo-no-\emptyset
IPFV-hit-1MIN.A-3MIN.O
'I hit him/her/it'</p> | <p>b. ki-togulo-nee-mu
IPFV-hit-1MIN.A-2MIN.O
'I hit you'</p> |
| <p>c. ki-togulo-gu-i
IPFV-hit-3MIN.A-3AUG.O
'he hit them'</p> | <p>d. ki-togulo-\emptyset iungopu
IPFV-hit-3MIN.A 1AUG
'he hit us'</p> |

Natügu, on the other hand, marks all subjects, and some objects, with suffixes, as indicated above. Given the differences between the marking patterns in the two languages, Äiwoo transitive and intransitive subjects are glossed in the examples as 'A' and 'S', respectively, whereas Natügu transitive and intransitive subjects are both glossed 'SBJ'.

- (5) NATÜGU
- | | |
|---|---|
| <p>a. Mëli ka tu-ä mö-ka.
time DEIC stand-1MIN.SBJ LOC-DEIC
'Now I stand here.'</p> | <p>b. Të-ä nidö, vë vë ä në-ta-o-ng.
hit-1MIN.SBJ 3AUG go go CONJ 3AUG.SBJ-fall-down-3AUG.SBJ
'I hit them, on and on and they fell down.'</p> |
|---|---|

The Äiwoo verbal lexicon shows a systematic distinction between what may be called transitive and semi-transitive verbs. Transitive verbs take subject and object suffixes,

TABLE 2. NATÜGU AND NALÖGO PRIMARY VERBAL PERSON AND NUMBER ENDINGS

	Natügu		Nalögo	
	MINIMAL	AUGMENTED	MINIMAL	AUGMENTED
1	-ä	-kō	-la	-lom
1+2	-ki	-ku	-ki	-ko
2	-ü	-amu	-lü	-lam
3	-le TR \emptyset INTR	në-...-lō në-...-ng	-te	lë-...-tō

TABLE 3. ÄIWOO INDEPENDENT PRONOUNS

	MINIMAL	UNIT-AUGMENTED	AUGMENTED
1	iü	iungole	iungo(pu)
1+2	iüji	iudele	iude
2	iümu	imile	imi
3	ine/inä	ijiile	iji

as described above, and are used to describe a single, specific instance of an event, with a specific and typically singular object. By contrast, a semi-transitive verb is formally intransitive, taking subject prefixes, but occurs with a noun referring to what semantically is an object of the verb. Semi-transitive verbs are used with generic, plural, or non-specific objects, and with repeated or habitual actions. Nearly all two-participant verbs in Äiwoo occur in transitive and semi-transitive variants; there is no single derivational morpheme deriving one form from the other, and no clearly identifiable direction of derivation, but the transitive and semi-transitive forms of a verb are clearly related, and there are a number of recurring patterns of alternation. Some examples of semi-transitive/transitive verb pairs are *vei* – *vili* ‘weave’, *kei* – *kili* ‘dig’; *gou* – *gu* ‘husk (coconut)’, *tou* – *tu* ‘hold, carry’; *päe* – *päi* ‘throw’, *epavi* – *epave* ‘cook’; *läwää* – *lää* ‘build’, *eäwää* – *eää* ‘pull’.

Natügu does not show the same systematic lexical distinction, but may derive forms that are functionally parallel to the Äiwoo semi-transitives by means of the detransitivizing prefix *ö-*. This gives pairs such as *kü* ‘dig a hole’ vs. *ö-kü* ‘be digging’, *glü* ‘carry something’ vs. *ö-glü* ‘be carrying’, *bi* ‘bake something’ vs. *ö-bi* ‘be baking’.

Both languages show fairly complex systems of tense-aspect-mood marking. Äiwoo has a set of three prefixes marking mood and aspect; these appear to be near-obligatory on verbs referring to dynamic events, though they are less common on stative verbs and nominal predicates. The basic contrast is between realis and irrealis mood, with a further distinction in the realis of perfective vs. imperfective aspect. The prefix *nä-/nä-* marks irrealis mood:

(6) ÄIWOO

a. *Kâ-no=ngä* *nâ-wowaa-wâ-gu-mu* *gino-u.*
 want-1MIN.A=OBL.PRO IRR-marry-DIR:2-3MIN.A-2MIN.O son-1MIN

‘I want my son to marry you.’

b. *Uuku, mo* *nâ-wagu-mu-dä.*
 INTJ CONJ IRR-say-2MIN.A-some

‘Oh! But you should have said something.’

I- and *ki-/ku-* mark realis perfective and imperfective, respectively:

(7) ÄIWOO

Lâ ku-wokâu=kâ, mo *temaale i-pu-eägä-mä.*
 DEIC IPFV-bathe=DEIC CONJ needlefish PFV-come-quiet-DIR:1

‘While (the crab) was bathing, the needlefish came quietly.’

An additional set of enclitics marks so-called phasal aspect, that is, which phase of an event is being focused on: its beginning or ending, or the progression of the event itself (cf. Dik 1997:225). The clitic =*to* is used to indicate a transition from one state of affairs to another, while =*jo* focuses on the progression of the event itself. The difference is illustrated by the following pair of examples:

(8) ÄIWOO

a. *i-lobâku-usi=to*
 PFV-fold-again.TR=PH

‘s/he had folded it again (the object was presented to me in a folded state)’

in an intransitive or semi-transitive verb when used on its own, as in (11a);² in order to derive a transitive causative verb, the transitive suffix *-wâ/-eâ* must be added, as in (11b).

(11) ÄIWOO

a. Lâ ku-lu-pwâ-nubo-le=to sîi kâ mo lâ ku-lu-pwa-le=nâ.
 DEIC IPFV-3AUG.S-CAUS-die-UA=PH fish DEIC CONJ DEIC IPFV-3AUG.S-go-UA=DEIC
 ‘They (two) killed fish as they went along.’

b. Sii wâ-nubo-wâ-i-le dâu.
 fish CAUS-die-TR-3AUG.A-UA many
 ‘They (two) killed a lot of fish.’

(12) ÄIWOO

Doo=lâ ki-mängä-ive-mu=wâ?
 what=DEIC IPFV-laugh-APPL-2MIN.A=DEIC
 ‘What are you laughing at?’

(13) ÄIWOO

Lâ i-pââ-i-le=to=wâ, i-ää-i-mä-i-le Tuwo kâ.
 DEIC PFV-steal-3AUG.A-UA=PH=DEIC PFV-paddle-COM-DIR:1-3AUG.A-UA Tuwo DEIC
 ‘They (two) stole it [a fish] and paddled back to Tuwo with it.’

Other derivational morphemes in Äiwoo include the reciprocal suffix *-lie*, which may be used on both transitive and intransitive verbs, and which does not change transitivity. It is possible that this suffix has developed from a verb, as it appears to trigger the transitive agreement suffix *-i* when used on a transitive verb (see 4.1.1). The oblique proform =C*ä* is a clitic that marks a relation between the verb and a peripheral participant, typically an instrument, or the place or the time in which the action takes place. The form of the initial consonant is determined by the person and number of the element to which the clitic attaches.

Derivational morphology in Natügu includes the causative prefix *a-*, the detransitivizing prefix *ö-* (see above), the applicative suffix *-ngö*, the transitivizing suffix *-ti*, and the comitative suffix *-mi*.

(14) NATÜGU

... békü twë-amu, muöde a-bë nâblo.
 PROH take-2AUG.SBJ because CAUS-die people
 ‘[If you see a big wave,] ... don’t take it, because it kills people.’

(15) NATÜGU

Në-abötë-tä-ng.
 3AUG.SBJ-happy-INTS-3AUG.SBJ
 ‘They were/are very happy.’

(16) NATÜGU

Në-abötë-ngö-dö ninge.
 3AUG.SBJ-happy-APPL-3AUG.SBJ IMIN
 ‘They were happy about me.’

2. The form *pwâ-* of the prefix is triggered by the preceding 3AUG.S marker; *w* and *v* following this marker are generally pronounced *pw-* or *p-*; cf. also example (3c).

- (17) NATÜGU
 Sâ tü-yëlu-mi-mou-bë-le mē Metalo.
 PFV RL-return-COM-again-thither-3MIN.SBJ PREP Metalo
 ‘He returned back to Metalo with it.’
- (18) NATÜGU
 Ä o ani nē-ö-twë-kö-dö nöpa kënike vë-ne,
 CONJ go quickly NMLZ-DETR-get/take-NMLZ-3AUG news whatever go-around
 muöde nē-ö-pi-lö na-ö-mâ-ti-ngö-dö nöwä.
 because 3AUG.SBJ-DETR-say-3AUG.SBJ IRR-DETR-see-TR-APPL-3AUG.SBJ peace
 ‘And they quickly take whatever news goes around, because they think
 they can find peace from (it).’

Both languages indicate direction of the verbal action. Äiwoo has three directional suffixes: *-mä* ‘towards 1st person’, *-wâ* ‘towards 2nd person’, and *-kâ/-kâ* ‘towards 3rd person’; corresponding to this we find a two-term system in Natügu, *-mü/-pü* ‘towards speaker, hither’ and *-bë* ‘towards non-speaker, thither’.

Other indicators of direction in many cases are independent lexical items in Äiwoo, but not in Natügu. The Äiwoo forms *ee* ‘up’, *woli* ‘down’, *to* ‘in’, and *lä* ‘out’ have independent uses as motion verbs meaning ‘go up’, ‘go down’, etc., and so must be analyzed as being serialized to the main verb (see 4.1); other forms such as *nedemu* ‘backwards’, *ule* ‘across’, *po* ‘through’, and *poli* ‘between’ are not attested with an independent use, though their distribution in the verb complex suggests a possible verbal origin. By contrast, the forms with similar meanings in Natügu are bound forms with no attested independent use synchronically (Lober and Boerger n.d.). These include *dë* ~ *-lë* ‘up,’ *-o* ‘down,’ *-tö* ‘in,’ *-pä* ‘out,’ *-ba* ‘reverse,’ *-ki* ‘move along a path,’ *-lvë* ‘towards, regarding,’ *-plä* ‘through,’ *-së* ‘beyond, away,’ and *-wi(ä)* ~ *-ä* ~ *-o* ‘across.’

3. RECOGNIZABLE OCEANIC MORPHOLOGY. Much of the morphology outlined above can be unproblematically identified as Oceanic. The Äiwoo person suffixes appear to a large extent to be cognate with the reconstructed Proto-Oceanic possessive suffixes (Ross and Næss 2007:476). Note that the apparently anomalous *-gu* for 3rd person minimal transitive subject in Äiwoo, in example (4c), has most likely been reanalyzed from a 1st person minimal form, cognate with Proto-Oceanic (POC) 1SG **-gu* (Lynch, Ross, and Crowley 2002:36). Äiwoo has no suffix for 1st person minimal object, and the use of *-gu* with no object indexing unambiguously implies a 1st person minimal object:

- (19) ÄIWOO
 i-togulo-gu
 PFV-hit-3MIN.A
 ‘he hit me’, *‘he hit you/him/her...’

If *-gu* originally indicated the 1MIN object, with the 3MIN participant being unmarked as it is elsewhere in the paradigm, the suffix could have been reanalyzed in sentences like (19) to refer to the 3MIN subject. Further support for this hypothesis comes from certain clitics with the form =*Ce*/=*Cä* ‘deictic’, =*Caa* ‘future/habitual’, and =*Cä* ‘oblique pro-

form’ (see 2.2), where the initial consonant is determined by the person/number marking of the element to which the clitics attach. Normally, clitics attaching to a 1MIN or a 1st+2nd person form take *ng-*, while clitics attaching to a 3MIN form take *n-*:

- (20) ÄIWOÖ
- a. Ki-te-usi-kâ-no=ngaa.
IPFV-see-again.TR-DIR:3-1MIN.A=FUT/HAB
‘I will see her again.’
 - b. Ki-te-kâ-ji=ngaa bulaape.
IPFV-see-DIR:3-1+2MIN.A=FUT/HAB tomorrow
‘We (=you and I) will see tomorrow.’
 - c. I-lotelâi-kâ isâ=naa.
PFV-prepare-DIR:3 mother.3MIN=FUT/HAB
‘Her mother would prepare it.’

However, 3MIN *-gu* triggers the *ng-* form, suggesting that historically it indicated the 1st (or 1st+2nd) person:

- (21) ÄIWOÖ
Ku-wopotaa-mana-i-gu=ngaa.
IPFV-search-very-TR-3MIN.A=FUT/HAB
‘He will search very hard for me.’

Overall, the pronoun systems in both Äiwoö and Natügu show obvious parallels to pronoun systems of Austronesian languages in a variety of locations; compare, for example, the paradigms in tables 1 and 3 above to that in table 4 showing Kambera, an Austronesian language of Sumba, Indonesia, where both the initial element *nyu-* and the person endings bear a strong resemblance to the Natügu and Äiwoö forms (data from Klamer 1998:129).³

The transitive-semitransitive alternation described for Äiwoö above has parallels in a number of Oceanic languages, where the semitransitive variants are often described as “object incorporation” (Lynch, Ross, and Crowley 2002:46). Sugita (1973) describes for the Micronesian languages Chuukese (Trukese), Pohnpeian (Ponapean), Kosraean (Kusaiean), and Marshallese a system of verbal alternations highly similar to that of Äiwoö, and indeed uses the term “semitransitive verbs” for the class of verbs patterning formally like intransitive verbs, but taking an object noun. On the relationship between transitive and semitransitive verbs in Chuukese, Sugita notes that “the two types of verbs come in pairs. In most cases, the members of a pair are derivationally related to each other, though an attempt to describe the derivation in synchronic terms may fail” (Sugita 1973:395)—a description that might equally well be applied to Äiwoö.

TABLE 4. KAMBERA INDEPENDENT PRONOUNS

	SINGULAR	PLURAL
1EXCL	nyungga	nyuma
1INCL	—	nyuta
2	nyumu	nyimi
3	nyuna	nyuda

3. For suggestions on how a minimal-augmented system may develop from an inclusive-exclusive one, see Cysouw (2003:260–64).

Ross and Næss (2007) show that a considerable portion of bound verbal morphology in Äiwoo has a clear Oceanic origin. The parallel between the Äiwoo irrealis prefix *nā-/nā-* and the reconstructed POC **na* ‘irrealis’ (Ross and Næss 2007: 491) may be unproblematically extended to Natügu *na-* ‘irrealis’.

For the directionals, Ross and Næss (2007:491) note that the cognacy of Äiwoo *-mä* ‘towards speaker’ with POC **mai*, **ma*, and of Äiwoo *-wā* ‘towards addressee’ with POC **ua*, **watu* is transparent; the position of Natügu *-mü/-pü* ‘hither’ and *-bē* ‘thither’ is perhaps less obvious.

The Äiwoo causative prefix *wā-* reflects POC **pa-* (Ross and Næss 2007:492); so, presumably, does the corresponding Natügu form *a-*. The Natügu transitive suffix *-ti* is strongly suggestive of the POC transitive suffix **-i* (Evans 2003).

The Äiwoo transitive agreement suffixes *-i* and *-ny(i)* (see 4.1.1) also plausibly reflect POC **-i* (Ross and Næss 2007:481). Note that Mussau-Emira, of the St. Matthias subgroup of Oceanic (cf. section 6 below), has transitivity suffixes *-i* and *-aini*, where a possible variant of the latter may be *-ni* (Brownie and Brownie 2007:103).

4. COMPLEX VERB STEMS. A considerable portion of the perceived complexity of Äiwoo and Natügu verbs arises from the fact that both languages frequently combine two or more lexical stems in a single inflected verb form. Some of these constructions might be analyzed as nuclear-layer serializations, in which two or more lexical verbs have combined into a single complex nucleus, having a single set of arguments and a single set of nuclear operators such as aspect markers (Foley and Van Valin 1984:188–97, 208–15).

The formal status of the stems typically found in such complex forms differs somewhat between the two languages: in Äiwoo, a large proportion of such stems also occur as independent lexical items, whereas this is less frequent in Natügu. As serial verb constructions are typically subject to grammaticalization over time, with the distribution of the participating elements gradually becoming more restricted, this is suggestive of a diachronic development where Natügu has traveled further on the path towards grammaticalization than has Äiwoo. Conceivably, such differences in grammaticalization might be part of the reason why Santa Cruz languages synchronically show a larger degree of complexity in their verb systems than does Äiwoo.

4.1 HEAD-MODIFIER SERIALIZATION

4.1.1 Äiwoo. Constructions like (22) are very common in Äiwoo:

- (22) ÄIWOO
 Ki-lolopâ-päko-mana=to.
 IPFV-RED.speak-good-very=PH
 ‘(The child) could speak very well.’

In these constructions, the initial verb describes the event taking place, while the following stems may be said to modify this initial verb. While some of the modifying stems found in such complex forms are clearly independent verbs (e.g., *päko* ‘(be) good’ in [22] above), others are not attested with an independent verbal use. These are reminiscent of what Crowley (1982, 2002) and François (2004) refer to as “adjuncts”, namely forms

that have a distribution internal to the verb complex, but no attested independent verbal use (e.g., *mana* ‘very’ in [22]). We will refer to these forms in Äiwoo and Natügu as bound adverbs. It should be noted, however, that in some cases the lack of attestation of an independent use may be due to incompleteness of the available data.

The formal transitivity of a head-modifier serial verb construction in Äiwoo is determined by the transitivity of the initial verb. If this verb is transitive—either because the stem itself is transitive or because it occurs with transitivizing morphology such as the causative, comitative, or applicative affix—the modifying form(s) generally show the ‘transitive agreement’ suffix *-i* or *-nyi(i)*. The alternation between the two forms of the suffix appears to be phonetically conditioned, in that modifying forms ending in *-e* or *-o* typically take *-nyi(i)*, while other forms typically take *-i*. There are exceptions to this pattern, however; for instance, *päko* ‘good’ takes *-i* rather than *-nyi(i)*.

(23) ÄIWOO

a. I-lolobâku-päko-i-kä.

PFV-RED.fold-good-TR-DIR:3

‘Fold it properly.’

b. I-tu wâ-lu-woli-eagâ-i.

PFV-carry CAUS-3AUG.S-go.down-quiet-TR

‘He took them and hid them (put them down stealthily).’

c. Nepä da-no nä-ngäbe-eke-nyi-kä-mu.

betel.mix PCLF-1MIN IRR-pound-fast-TR-DIR:3-2MIN.A

‘Pound my betel quickly.’

If there are several modifying stems following a transitive V1, the suffix generally appears only on the final stem. An exception involves the alternating forms *ute* and *usi* ‘again’, where *ute* is the form found modifying an intransitive verb, while *usi* is the form found modifying a transitive verb. In (24), *usi* is found following a transitive head even if there are additional modifying stems following it, while the *-i/-nyi(i)* suffix appears on the final stem:

(24) ÄIWOO

i-lovävi-usi-päko-i-kä=jo=wâ

IPFV-arrange-again.TR-good-TR-DIR:3=PH=DEIC

‘it will be put back in order’

The directional verbs *ee* ‘up’, *woli* ‘down’, *to* ‘in’, and *lä* ‘out’ similarly do not show the transitive agreement suffix when they occur following a transitive verb in a nuclear serialization construction:

(25) ÄIWOO

a. i-tâlu-woli-kä-i

PFV-cut.flexible.object-go.down-DIR:3-3AUG.A

‘they cut down (the vine)’

b. i-luwo-i-lâ-gu-i-le

PFV-rush-COM-go.out-3MIN.A-3AUG.O-UA

‘she rushed out with (= carrying) them’

It should be noted that in many cases it is difficult to determine whether complex constructions involving directional verbs are in fact head-modifier constructions or

rather complex-event constructions (see 4.2 below): does the directional verb indicate the direction of the action performed, that is, a kind of modification, or does it rather describe the movement of a participant in the event as a result of the action, that is, a kind of complex-event construction? Because the complex-event construction does not show the transitive agreement markers, the latter analysis might explain the lack of such markers with directional verbs.

4.1.2 Natügu. As in Äiwoo, Natügu commonly shows constructions where a head verb is modified by a second lexical element inside the verb complex. There is clearer evidence in Natügu than in Äiwoo for a distinct class of bound adverbs (cf. 4.1.1. above) that occur only with a modifying function in this second slot of the verb complex, and that cannot occur independently. They are categorized as lexical because they have lexical meanings and are usually two or three syllables in length, as opposed to the majority of inflectional and derivational morphemes, which are monosyllabic. They contrast with free adverbs in that their position is fixed inside the verb, whereas free adverbs can appear immediately after the verb or even precede the verb, as sentence level modifiers. For V1+modifier constructions in Natügu, the full verb functions as the head and describes the event taking place, while the following morpheme modifies this initial verb. The modifier morphemes can be divided into four types based on distribution and part of speech as in (26) a. bound adverbs, b. free adverbs, c. independent verbs, and d. incorporated nouns (six identified to date, and used only with verbs of existence or speaking). The verb and its modifier(s) are followed by optional inflectional and derivational morphemes, and by obligatory person/number suffixes.

(26) NATÜGU

- a. Ka-dwëlö-ngö-m tōau kâ tü-kaon-ti-me!
 give-back-APPL-hither money DEIC REAL-owe-TR-2MIN.SBJ
 ‘Give back the money which you owe!’
- b. Sa na-a-lu-mou-le dötá' lâ tü-mingö-pe.
 IPFV IRR-CAUS-live-again-3AUG.SBJ land DEIC REAL-dry-COMPL
 ‘It (the rain) will make the dry ground live again.’
- c. Ä lomö-de lu-blâ-tö kädü nätü tōpapa kâ.
 CONJ chest-3MIN.POSS pierce-jump-in one piece timber DEIC
 ‘And his chest, a piece of that timber pierced into it.’
- d. Yámne-ëngya'-bë-Ø ba-dö.
 speak-anger-thither-3MIN.SBJ DAT-3AUG
 ‘He speaks angrily to them.’

Natügu favors constructions paralleling (26a), with a bound morpheme in the second position, whereas in Äiwoo, as noted above, independent verbs are highly frequent in this position.

4.2 COMPLEX-EVENT SERIALIZATION

4.2.1 Äiwoo. In the other type of serialization construction, each of the verbs involved—usually two—describes one part of a complex event:

(27) ÄIWOO

- a. ...mo dee nye-ku-pu-to-kä=nä=nâ
 CONJ this NMLZ-IPFV-come-go.in-DIR:3=OBL.PRO=DEIC
 lâ i-so-bengi=nâ.
 DEIC PFV-stand-block=DEIC
 ‘... because he was blocking the way she had come.’
- b. I-wo-pongi mo ba i-liaa-kä=gu.
 PFV-go-chase CONJ NEG PFV-reach-DIR:3=NEG
 ‘He chased him but didn’t reach/catch him.’

Unlike the head-modifier constructions, the transitivity status of the complex-event construction in Äiwoo is determined by the transitivity of the final verb; accordingly, this construction does not show the type of transitive agreement marking found in the head-modifier construction.

Although the basic structure of a complex-event construction is that of two verbs forming a single complex stem, the degree of independence of the elements typically found in such constructions may vary. Some elements are not attested outside of complex verb forms, and it may be difficult to say to what extent they constitute independent lexical entities, and to assess their precise meaning. For example, *lo* is clearly a verb meaning ‘take, grab, touch’, as seen from examples such as (28):

(28) ÄIWOO

- a. Lu-pwâ-le pevaio-lele ngâ paveli go na-li-lo-kä-le upoji.
 3AUG.S-go-UA morning-early to garden CONJ IRR-3AUG.A-take-DIR:3-UA yam
 ‘Early in the morning they went to the garden to collect yams.’
- b. Mi-de lo-mä=io!
 2MIN.S-PROH take-DIR:1=PROH
 ‘Don’t touch me!’

It is, however, at least as common as the first element in complex forms: in *loosi* ‘take hold of something and turn it’, the second element is identifiable as *uusi* ‘turn’, but in (for example) *lobou* ‘grope for something which one cannot see’, *lokei* ‘grab a pig by its leg and turn it over’, or *lolou* ‘stick one’s hand into something to take something out’, the second elements are not attested as independent verbs. Similarly, *ngäbe* ‘pound with a pestle’, *ngänyi* ‘push something into the ground’, and *ngävinei* ‘when preparing pudding, to poke holes with a stick so that the coconut cream can seep into the grated cassava or other root vegetable’ seem to share a root *ngä* with a meaning perhaps of ‘downward thrusting motion’, but it is not clear whether *ngä* may function as an independent verb. In the same way, except for *be* ‘become soft’ (see table 6 below), it is not known whether the second elements of these forms occur in other contexts. There are many such recurring elements in the Äiwoo verbal inventory that have constant meanings across forms and presumably originated as independent verbs, though it is unclear whether they function as such today.

Given the semantics of the complex-event construction, it is not surprising that its constituent elements show a tendency to lose their independence and lexicalize into a single integrated form; as the constituents of the construction describe subparts of what is construed as a single event, the complex forms may over time be reanalyzed as single lexemes referring to the event as a whole (cf. section 5 below).

4.2.2 Natügu. Natügu has similar constructions to those described in 4.2.1 above for Äiwoo, where two verbs in a complex construction each describe aspects of a single complex event. However, as Natügu lacks the explicit formal distinctions found in Äiwoo between transitive and intransitive verbs, and has no morpheme parallel to the Äiwoo transitive agreement suffixes *-i* and *-nyi(i)* (see 4.1.1), it is difficult to establish any formal differences between head-modifier serialization and complex-event serialization in Natügu.

- (29) NATÜGU
- a. Twë-pna-ti-amu dëtu-dö-ng amölä.
take-steal-TR-2AUG.SBJ possession-3AUG.POSS-PL all
'You stole all their possessions.'
- b. Në-tu-lekiö-ngö-dö nëti ö-de.
3AUG.SBJ-stand-block-APPL-3AUG.SBJ path PCLF-3MIN.POSS
'They blocked his path.'
- c. Më nibö-de obü-ö-mwible-mou-ä.
PREP back-3MIN.POSS look-DETR-dream-again-1MIN.SBJ
'Afterward I had another vision.'

The complex-event constructions in Natügu seem to be less frequent and less productive than in Äiwoo, except for the “cut and break” verbs that are discussed in section 5 below. That said, however, while translating the concept ‘to have a vision’, the senior translator invented the term ‘look-dream’, which was easily grasped by subsequent reviewers and barely questioned. Therefore, it appears that there is still some productivity allowed for forming new complex-event constructions in Natügu.

4.3 BOUND ELEMENTS AND GRAMMATICALIZATION. Both in Äiwoo and Natügu, structures similar to those described in 4.1 and 4.2 may include elements that are not attested as independent verbs. This is particularly common in Natügu, where there is evidence for a distinct class of bound adverbs, which only occur in such complex constructions.

In Äiwoo, stems restricted to appearing exclusively in complex forms are fewer, though many are overwhelmingly more frequent in complex verbs than they are as independent items. An interesting case is the lexeme *ngege*. In Næss’ field data, this form is only attested with modifying function in complex verb structures, with the meaning ‘immediately’; it is not attested as an independent verb, nor could an independent verbal use of this form be elicited from consultants:

- (30) ÄIWOO
Ku-pu-siki-woli-ngege=kâ.
IPFV-go-drip-go.down-immediately=DEIC
'It dripped down at once.'

However, in Stephen Wurm’s archived materials, collected in the 1970s and early 1980s, *ngege* occurs as an independent verb with the meaning ‘push’:

- (31) ÄIWOO
Käsä=jo=wä daa sosipene ki-ngege-to-kä.
be.like=PH=OBL.PRO bottom saucepan IPFV-push-go.in-DIR:3
'Like the bottom of a saucepan, he pushed it.'

While this could be a distinct lexical item, the semantic link between the act of pushing and the notion of abruptness or immediacy appears fairly reasonable. If it is indeed the same lexical item, then it appears that *ngege* has at one stage been an independent verb, but that this verbal use is highly restricted or perhaps lost altogether in current usage. Such gradual restriction of the distribution of the elements occurring in serial verb constructions is a common process, and may eventually lead to the grammaticalization of the elements in question into bound morphology. A probable stage in this process is illustrated by the Äiwoo morphemes *vesi* ‘still’ and *läoo* ‘always’, which are only found as modifiers of verbs in complex structures. Their function might be described as grammatical in that they specify an event as ongoing, continuous, or habitual—in other words, they are indicators of aspect. At the same time, they behave formally like verbs in that they show the transitive suffix *-i/-nyi(i)* described in 4.1.1 above when the head verb of the complex is transitive:

(32) ÄIWOO

- a. Mo päbu nede i-magumu-**vesi-i**.
 but giant.clam mouth.3MIN PFV-close-still-TR
 ‘But the giant clam kept closing its mouth.’
- b. Wâ-dâu-mana=to ku-wâbâvâkâ-i nyike ä nyimâ
 CAUS-many-very=PH IPFV-try-3AUG.A leg.3MIN CONJ hand.3MIN
 ku-tuwo-i go seni mo ki-e-tâlu-**läoo-nyii**.
 IPFV-hold-3MIN with chain but IPFV-PREF-snap-always-TR
 ‘Many times they had tried to tie his arms and legs with chains, but he always broke them.’

Natügu also has forms with ambiguous formal status relating to the verb complex. The modifying stems *pnë* ‘previously’ and *ate* ‘subsequently’ may occur either inside the verb complex or outside it, illustrating how elements of the verb complex may show varying degrees of independence:

(33) NATÜGU

- a. A' mu-kai-amu më ma nyë-mu-ng, ä më nibö-de
 CONJ eat-first-2AUG.SBJ PREP house PCLF-2AUG.POSS-PL CONJ PREPback-3MIN.POSS
 sâ tü-yölwö-läblö-**ate-amuba-dökëte-mu-ng**.
 PFV RL-gather-together-subsequent-2AUG DAT-3AUG friend-2AUG-PL
 ‘But first eat at your houses, and then afterward gather with your friends.’
- b. Suti-tä-ëlwë-bë dötwö-nge kä na-vë-kai-pe'
 want-very-much-hither neck-1MIN.POSS SUBR IRR-go-first-hither.2MIN
 ä mëli ö nenü kë-pöla kâ **ate**.
 CONJ time of wind from-sea DEIC subsequent
 ‘I very much want that you come before the sea gets rough.’

5. “CUT AND BREAK” VERBS. A particularly interesting instance of the complex-event construction is what may be called “cut and break” (C&B) verbs (Majid, Bowerman, van Staden, and Boster 2007), that is, verbs referring to the targeted destruction or modification of different types of objects and substances. In both Äiwoo and Natügu these are morphologically complex forms with a large inventory of possible components and a high degree of productivity, leading to a vast range of possible forms used to refer to events of cutting, breaking, hitting, and so on.

5.1 ÄIWOO. C&B verbs in Äiwoo consist of two parts: the first element specifies the manner of the action performed by the agent and the instrument with which it is performed, if any; the second specifies the manner in which the object breaks. Because different things break in different ways, the latter half of these two-part verbs also frequently implies information about the shape or material of the object, as with the English verbs *slit, snap, smash, split, squash*, and so on.

The initial element may be an independent verb, for example, *so* ‘stand’ (*soki* ‘stand on, e.g., a branch to make it snap’), *giwa* ‘jump’ (*giwaki* ‘jump on something to make it snap’), or *eää* ‘pull’ (*eäälu* ‘snap a rope or string by pulling at it’). Some verbs take a slightly different form when appearing as the first element of a C&B verb, as with *päi* ‘throw’ ~ *pängii* ‘smash a bottle or similar object by throwing it’. But there are also a large number of forms found in the initial position of C&B verbs that are not attested as independent verbs. Table 5 lists a number of forms commonly found in initial position of C&B verbs, with meaning and examples; the list is not intended to be exhaustive.

Of the forms found in second position of a C&B verb, indicating the effect on the object, only a few are attested as independent verbs, for example, *wawee* ‘to startle or surprise someone’ – *väwawee* ‘hit someone and startle them’. Note that the same verb may appear both in first and second position of a C&B verb: *eäälu* ‘snap a string/rope by pulling at it’; *vääää* ‘pull or stretch something by hitting it’. However, even those forms that have no attested independent use behave like verbs in that they typically come in two

TABLE 5. EXAMPLES OF ÄIWOO FORMS IN INITIAL POSITION OF CUT & BREAK VERBS

FORM	MEANING	EXAMPLES
bo-	‘intransitive prefix’	<i>boki</i> ‘be broken, snapped’
ba-	‘to break by holding both ends and pushing down; “unmarked” or prototypical breaking’	<i>baki</i> ‘snap, e.g., a twig’
bu-	‘push with sole of foot’	<i>bubi</i> ‘step on a tin or similar thing, bending it out of shape’
eä-	‘slice, cut into small pieces’	<i>eägäsi</i> ‘cleave into several pieces’
eää-	‘pull at X so it breaks (<i>eää</i> ‘pull’)’	<i>eäälu</i> ‘snap by pulling (e.g., rope)’
ko-	‘lie on X so it breaks (<i>ko</i> ‘lie’)’	<i>koki</i> ‘lie on (e.g., stick) so it snaps’
lä-/lä-	‘chop with an ax or bushknife that is brought down with some speed and force’	<i>läki</i> ‘chop (e.g., wood)’
mâ-	‘bite off (<i>mää</i> ‘to hold between teeth’); also be crushed between two surfaces, like biting (<i>mägulo</i>)’	<i>mâbe</i> ‘chew, make soft through chewing’
nu-	‘grasp, pinch, squeeze’	<i>nubu</i> ‘break off a piece, e.g., of bread’
pä-	‘throw X to break it (<i>päi</i> ‘throw’)’	<i>pägulo</i> ‘throw to crack open’ (e.g., a nut)
pu-	‘bump into while walking (<i>pu</i> ‘walk’)’	<i>pupoi</i> ‘bump into’
po-	‘kick X so it breaks’	<i>pogulo</i> ‘kick, e.g., a coconut so it cracks open’
so-	‘stand on X so it breaks (<i>so</i> ‘stand’)’	<i>soki</i> ‘stand on, e.g., a stick so it snaps’
tâ-/tä-	‘cut with a knife or similar, in a sawing motion’	<i>tâbu</i> ‘cut s.t. soft and crumbly, e.g., bread’
tä-	‘sit on X so it breaks (<i>tääe</i> ‘to sit up’)’	<i>täki</i> ‘sit on, e.g., a stick so it snaps’
to-	‘strike with a single hard blow/punch’	<i>tongii</i> ‘strike s.t. so it shatters’
ugulo-	‘throw another object at X so X breaks’	<i>ugulongii</i> ‘smash s.t. by throwing s.t. at it’
vä-	‘hit with a long instrument, or with side of hand (i.e., moving arm like a long instrument)’	<i>vâbe</i> ‘hit to soften, e.g., coconut fibers’
wo-	‘tap or hammer, esp. with a rock or similar (<i>woo</i> ‘to hammer’)’	<i>wogulo</i> ‘tap to crack open, e.g., a nut’

variants, one transitive and one semi-transitive. Table 6 gives examples of forms found in second position of Äiwoo C&B verbs; where a transitive and a semi-transitive form are attested, both are given, while a long dash indicates that no form is attested.

Äiwoo C&B verbs pattern like the complex-event constructions described in 4.2.2. in that the transitivity of the verb form as a whole is determined by the transitivity of the second element.

TABLE 6. EXAMPLES OF ÄIWOO FORMS IN SECOND POSITION OF CUT & BREAK VERBS

	SEMI-TRANSITIVE	TRANSITIVE	MEANING	EXAMPLES
-be	—	—	'become soft as a result of impact, but still retaining approximately original shape'	<i>mabe</i> 'chew on'
-bi	—	—	'be crumpled or bent out of shape, e.g., a tin can'	<i>bubi</i> 'step on s.t., bending it out of shape'
-bu	-bonge	—	'break, of soft and brittle objects that break in a 'crumbling' way rather than snapping sharply'	<i>babu</i> 'break, e.g., bread'
-eäli	—	—	'scrape the skin or outer layer, e.g., bark or a scratch on human skin'	<i>läeäli</i> 'peel, strip off skin or bark'
-gäsi	-gäte	—	'cleave'	<i>lägäsi</i> 'cleave'
-gii	-gee	—	'squash (soft objects, e.g., fruit)'	<i>nugii</i> 'squeeze coconut cream'
-gulo	-go	—	'crack open (e.g., nuts); also used for hitting people, with no implication of injury'	<i>pogulo</i> 'kick s.t. to crack it open'
-ji	—	—	'graze or glance off, not striking properly but making contact'	<i>toji</i> 'strike at s.t. and graze it'
-kai	-kaa	—	'hit/throw/etc. in order to frighten off s.t. or s.o.'	<i>bukaa</i> 'splash feet in water to chase fish into net'
-kâ	—	—	'peel or strip off bark or skin'	<i>vâkâ</i> 'peel'
-ki	-ke	—	'break, snap, of long rigid objects, e.g., sticks'	<i>tâki</i> 'cut'
-lu	-lowe	—	'break, snap, of long flexible objects, e.g., rope, hair, grass'	<i>tâlu</i> 'cut hair, grass, or vines'
-ngi	—	—	'cut or chop into bits'	<i>eangi</i> 'slice'
-ngii	-ngee	—	'smash, shatter, of brittle objects, e.g., glass'	<i>pängii</i> 'throw s.t. so it shatters'
-peli	-pele	—	'pierce all the way through'	<i>lapeli</i> 'thread on a string'
-po	-pwe	—	'pierce or puncture, with hole going only partly into the object, not all the way through'	<i>läpo</i> 'chop a hole in'
-poi	-pwee	—	'push or bump into'	<i>popoi</i> 'kick'
-pule	—	—	'split open, into two or more pieces, e.g., fruit'	<i>tâpule</i> 'cut open with a slicing motion'
-si	—	—	'chip the edge'	<i>tosi</i> 'hit s.t., chipping the edge of it'
-sii	—	—	'rip a hole, e.g., in cloth or a leaf wall'	<i>päsii</i> 'throw an object at s.t., ripping a hole in it'
-täli	-täle	—	'tear, rip apart'	<i>vätäli</i> 'rip open'
-vi	-ve	—	'cut open s.t. with a hard skin, e.g., nuts'	<i>lävi</i> 'chop to cut open'
-waamu	—	—	'pretend to hit/cut/etc. but not really intending to make impact'	<i>towaamu</i> 'pretend to hit'

(34) ÄIWOO

- a. Nyenaa-ee i-lä-ki-no.
tree-DEM PFV-chop-break.rigid.object.TR-1MIN.A
'I chopped down this tree.'
- b. Me-ki-lä-ke näte.
1AUG.S-IPFV-chop-break.rigid.object.STR firewood
'We chopped firewood.'

(35) ÄIWOO

- a. Nyigââ eângâ wo-gulo-Ø.
sea.almond DEM hammer-crack.open.TR-3MIN.A
'He cracked that sea almond open.'
- b. Mi-nâ-wo-go nenu.
2MIN.A-IRR-hammer-crack-open.STR coconut
'Go and break open some coconuts.'

The difference between C&B verbs and the complex-event serializations described in 4.2 appears to be one of degree rather than kind. The V1 slot in Äiwoo C&B verbs commonly hosts forms that are also independent lexical verbs; this is less common for the V2 forms, but these still show clear verbal properties in that they alternate between transitive and semi-transitive forms.

5.2 NATÜGU. Natügu has similar forms for the acts of cutting, breaking, and so on as does Äiwoo, that is, complex forms in which the first slot specifies the action, generally implying an instrument or actor, while the second slot indicates how the object breaks, with an implication regarding the shape or material of the object. The form in the initial slot may be an independent verb, but more frequently is not attested with an independent verbal use; however, in a number of cases such forms bear a formal resemblance to an independent verb with a corresponding meaning. An example is *äbu* 'sit on something to break it' (*äbuglä* 'sit on something so it shatters'), where the corresponding independent verb is *wäbu* 'sit'.⁴

Table 7 lists some forms found in initial position of C&B verbs, with their meanings and examples. The free morphemes are bolded and the bound are not. Table 8 gives examples of forms found in second position of Natügu C&B verbs. Of the more than twenty forms found in second position, *bü* 'kill' is the only form with any textual evidence of being an independent verb, due to a single occurrence in one text in the sentence, *Lötëlvë kâ büpe döka* 'The old man was killed by the demon.' Furthermore, no verb has been found in the data available for Natügu that can fill both the first and second slots in a C&B verb as is reported for Äiwoo. Note that the forms *wi-* 'to saw' and *-wi* 'to halve' are homophones, but do not share the same meaning.

(36) NATÜGU

- a. Nâ tabao kâ tü-lu-nge-o-mü-le bute' kâ.
tree papaya DEIC RL-poke-hole-down-hither-3MIN.SBJ corner DEIC
'The papaya tree poked a hole in the corner (of the house).'

4. Interestingly, *wäbu* 'sit' is actually a two-part verb itself, comprised of a bound morpheme, *wä-* 'sit', and a free morpheme, *bu* 'fold.' Outside the form *wäbu*, *wä-* only occurs in the construction *wä-nëlongö* 'be dark,' or more literally 'for darkness to sit.'

- b. Bulldozer o-myö-ngö-de ninge.
bulldozer go-crush-APPL-3MIN.SBJ 1MIN
'The bulldozer (ran over and) flattened me.'
- c. Mötwē' kā-mü ngö lāsu kā sâ tü-ta-glā-ti-tö-pe nōā.
point SUBR-back of ship DEIC PFV RL-hit-shatter-TR-in-COMPL wave
'The stern of the ship was battered apart by waves.'
- d. Vae-bū-ti-amu menōpa ne-nge.
pelt-kill-TR-2AUG.SBJ messenger PCLF-1MIN.POSS
'You stoned to death my messenger.'

TABLE 7. EXAMPLES OF NATÜGU FORMS IN INITIAL POSITION
OF CUT & BREAK VERBS

ROOT 1	MEANING	EXAMPLES
äbu-	'sit on s.t.'	<i>äbuglä</i> 'sit on, e.g., a bottle so it shatters'
bä-	'break, damage, touch'	<i>bäpli</i> 'rip fabric'
dwa-	'break from tension'	<i>dwaki</i> 'break from tension along path'
la- ~ rla-	'cut, chop, hack with knife or axe'	<i>laki</i> 'cut into s.t.'
lo-	'break soft thing with hand'	<i>lopäi</i> 'break off pieces of s.t. soft'
lu-	'spear, stab'	<i>lupläätö</i> 'pierce into, but not back out'
lva-	'prune or trim by hand or knife'	<i>lvaki</i> 'strip a branch of all smaller branches, younger speakers'
lvä-	'prune, cut'	<i>lväöpä</i> 'prune, older speakers' <i>lväsö</i> 'lance a boil'
ma-	'bite to break or cut'	<i>maki</i> 'bite into something held in the hand' <i>makä</i> 'bite s.t. soft'
mö-	'break brittle, firm, or ceramic object, by use of instrument'	<i>möplä</i> 'have a hole'
nga-	'utilizing a stake'	<i>ngati</i> 'husk a coconut (on an inverted stake)'
ni-	'human agent, instrument unspecified, by hand, as opposed to instrument, so generally refers to smaller object'	<i>niböti</i> 'press crush' <i>niglä</i> 'crush by hand', cf. <i>möglä</i> <i>niki</i> 'break rope, e.g., by hand or with small instrument', cf. <i>paki</i> <i>niväi</i> 'break or snap a stick'
o-	'move, run, go'	<i>omyö</i> 'run over and flatten'
pa-	'break with an instrument in the hand, when instrument is knife this word can mean 'cut' like <i>la-</i> ; <i>pa</i> may be more surgical'	<i>paki</i> 'break rope, e.g., using an instrument' <i>paplä</i> 'drill, cut, or punch a fine hole through s.t.' <i>pawi</i> 'to saw; to saw in half'
pë-	'cut, slice, butcher s.t. with soft flesh surgically, carefully'	<i>pëti</i> 'cut, e.g., onion into pieces'
pi-	'to riddle or shred s.t. that retains its shape'	<i>pinge</i> 'make holes or rips'
pla-	'to break a long object by holding both ends and snapping it ('prototypical' breaking action); 'break' in general'	<i>plamei</i> 'break'
ta-	'to hit, strike s.t. solid; one blow that breaks, direction of break unspecified'	<i>taplä</i> 'hit s.t. through to make a hole' <i>taglä-</i> 'hit splinter'
të-	'to hit s.t. that gives; slug'	<i>tëbü</i> 'kill by a hard blow'
tu-	'stand'	<i>tuplä</i> 's.t. sharp pierces flesh and remains, what stickers or porcupine quills do'
vae-	'pelt, throw s.t. at'	<i>vaebö</i> 'to shoot stones at' <i>vaebü</i> 'to kill by stoning'
veä-	'pull'	<i>veäglä-</i> 'shatter by pulling'
wi-	'saw with a saw'	<i>wiplätä</i> 'saw across through'
yë- ~ ya-	'peel with a peeler'	<i>yëkö</i> 'peel s.t. with a peeler'
yöbū-	'lie, recline'	<i>yöbūvä</i> 'break s.t. by lying on it'

We see, then, that the number of identifiable independent verbs entering into C&B forms is considerably smaller for Natügu than for Äiwoo. If these types of complex verb constructions indeed have their diachronic source in nuclear-layer serial verb constructions, it appears that Natügu and Äiwoo are at different points in their development; there is less synchronic evidence for a verbal source in the Natügu data than there is for Äiwoo, though the account above does suggest a lexical origin for many of the elements of the verb complex.

6. PARALLELS IN OCEANIC LANGUAGES. Crowley (2002) gives an extensive treatment of verb serialization in Oceanic languages, showing that it is a common phenomenon throughout the Oceanic family. He further discusses how serial verb constructions (SVCs) may undergo gradual grammaticalization and ultimately develop into affixal morphology: “The first or the second elements in nuclear serial verb constructions are not infrequently found to become functionally restricted.... Such functionally restricted forms can then become phonologically reduced to the kind of shape that might

Table 8. EXAMPLES OF NATÜGU FORMS IN SECOND POSITION OF CUT & BREAK VERBS

ROOT 2	MEANING	EXAMPLES
-bö	‘crush, be crushed, have pain’	<i>nibötio</i> ‘distort by crushing down’
-bü	‘killed, be killed’	<i>nibü</i> ‘to kill’
-düti	‘grindingly’	<i>madüti</i> ‘grind one’s teeth’
-glâ	‘shatter in pieces’	<i>möglâ</i> ‘break s.t. brittle’
-kâ	‘(bite) s.t. soft’	<i>makâ</i> ‘bite s.t. soft’
-ki	‘tension along path causes action of V1’	<i>taki</i> ‘bang with instrument, e.g., stone, to break or cut’
-kö	‘a shaving (take a soft bit off)’	<i>laköpä</i> ‘cut out bad spot’ <i>paköpä</i> ‘remove bad spot in fruit’ <i>bäkö</i> ‘graze off some skin’
-liki	‘s.t. soft or brittle that drops, drops down, drops off’	<i>wäliki</i> of things that just drop off while sitting there, crumble away
-mei	‘crack’	<i>plamei</i> ‘break’
-myö	‘be crushed, completely’	<i>tumyö</i> ‘stand on to crush’
-nge	‘to make a hole in s.t. with instrument’	<i>tange</i> ‘hit a hole into’
-päi	‘break s.t. soft with hand’	<i>lopäi</i> ‘break off pieces of s.t. soft’
-pië	‘split lengthwise’	<i>lapië</i> ‘split, as in firewood’
-plâ	‘pierce into, pierce through’	<i>möplâ</i> ‘have a hole, be broken’ <i>luöplâ</i> ‘pierce through’
-pli	‘object is s.t. soft’	<i>mapli</i> ‘bite off soft things’ <i>bäpli</i> ‘rip fabric’ <i>laplilë</i> ‘cut tree to its roots, killing it’
-pö	‘drive into the ground’	<i>ngapö</i> ‘drive stake into ground’
-pu	‘hard outer shell with s.t. squishy or liquid inside’	<i>lapu</i> ‘cut, e.g., a coconut’ <i>tapu</i> ‘hit to break open’
-sö	‘release’	<i>lväsö</i> ‘lance a boil’
-väi	‘broken, break s.t. long’	<i>taväi</i> ‘break (a bone or stick)’
-ve	‘damage s.t. large’	<i>laveti</i> ‘cut into large pieces without splitting, i.e., firewood’ <i>tave</i> ‘break down’
-wi	‘in half, into the middle of, not lengthwise’	<i>lawi</i> ‘cut in half, hack into the middle of’ <i>tawi</i> ‘strike s.t. across its middle’

be typically expected for an affix—such as being no longer than disyllabic—as well as coming to belong to a well-defined set of paradigmatically related forms” (Crowley 2002:176). As examples of such grammaticalization in Oceanic languages, Crowley cites the North New Guinea language Numbami, which has a set of resultative particles that have been reanalyzed from serialized verbs; a similar set of forms has further grammaticalized into derivational suffixes in Big Nambas of Vanuatu.

Several other languages show intermediate stages of grammaticalization, where some constructions show a structural ambiguity between serialization and affixing. In Lewo, spoken on Epi Island in Vanuatu, nuclear-layer verb serialization is a common process with a variety of functions. However, the forms found in second position of these serialized constructions only rarely occur as independent verbs; Early (1993) lists ninety forms occurring in this position, of which only nine are attested as independent verbs. Nevertheless, these forms show a number of verbal properties such as the ability to reduplicate, otherwise restricted to verbs in Lewo, and a residue of realis/irrealis marking (Early 1993:78–79).

In Saliba, spoken in Papua New Guinea’s Milne Bay Province, up to four stems can combine into a single complex verb form; all slots may host both forms that have independent verbal uses and forms that do not, though on functional grounds Margetts (2005:68) suggests that the forms in the two final slots may not be fully verbal, given that they have a mainly modifying function.

There are several parallels between complex verbs in Saliba and those described above for Äiwoo and Natügu. For example, a transitive V1 triggers the suffix *-(e)i*, which Margetts labels “applicative”, on the final stem of the complex (cf. 4.1.1):

(37) SALIBA

- a. Se-gabae-dobi-ei- \emptyset .
 3PL-throw-down-APPL-3SG.OBJ
 ‘They threw it down.’

- b. *se-gabae-dobi
 3PL-throw-down

(Margetts 2005:79–80)

Events of the “cut and break” type are consistently expressed by complex verb forms in Saliba, where the first verb refers to the action and the second to its result:

(38) SALIBA

- | | |
|--|--|
| a. Ye-koi-kesi- \emptyset .
3SG-hit-break-3SG.OBJ
‘He broke it.’ | b. Ye-sikwa-he-beku- \emptyset .
3SG-poke-CAUS-fall-3SG.OBJ
‘He poked it to make it fall.’ |
|--|--|

(Margetts 2005:69–70)

Margetts (2005:70–71) notes that, in elicitation, Saliba speakers may accept simple verbs to express a result or change of state, but that no actual textual examples of this are attested; she concludes that “it seems conventionally required in Saliba to specify the event that caused the change of state.” This clearly parallels the situation in Äiwoo and Natügu, where forms with similar meanings are consistently formed by combining two stems with distinct identifiable meanings, although not all stems entering into these forms have a synchronic independent use as verbs.

Some Oceanic languages of the Milne Bay area show “classificatory prefixes” with manner/instrument meanings, as in Tawala, where one finds sets of forms such as the following (Ezard 1978:1164):

- (39) TAWALA
- | | | | |
|-------------|---------------------|-------------|-------------------|
| hana-hedali | ‘break with teeth’ | hana-loloya | ‘tear with teeth’ |
| tu-hedali | ‘break with feet’ | tu-loloya | ‘tear with feet’ |
| tupa-hedali | ‘break by knocking’ | tupa-loloya | ‘tear by bumping’ |

Note the similarity of the structures in (39) to the Āiwoo and Natügu cut and break verbs. The Tawala classificatory prefixes have no synchronic use as independent forms, but are assumed to have been grammaticalized from compound verbs (Lithgow 1976:478).

Numerous examples of serial verb constructions of different types in Oceanic languages are found in Brill and Ozanne-Rivierre (2004). It may be of particular interest to note that Brownie and Brownie (2007) distinguish a number of different types of serial verb constructions in Mussau-Emira, the language of the St. Matthias Islands in the New Ireland Province of Papua New Guinea. Ross and Næss (2007:471–72) suggest that Mussau-Emira, along with Tench, with which it forms the St. Matthias subgroup of Oceanic, may be linked to the Temotu subgroup through a shared phonological innovation, the merger of POC *r and *l as *l. Among the types of serial verb construction described by Brownie and Brownie are directional SVCs, complex event SVCs, and adverbial SVCs. In directional SVCs, “the directional motion verbs *sae* ‘go up’, *sio* ‘go down’, *ghoa* ‘go out’ and *sso* ‘go in’ can be used to indicate the location of the event and direction of movement” (Brownie and Brownie 2007:131); as demonstrated in 4.1.1, the Āiwoo verbs *ee* ‘go up’, *woli* ‘go down’, *lâ* ‘go out’, and *to* ‘go in’ have much the same uses. In Natügu, on the other hand, the forms indicating direction up, down, in, and out have no independent verbal uses, but behave synchronically as suffixes to the verb.

In Mussau-Emira complex-event SVCs, “the verbs refer to the sequence of parts of the event, or to various parts of the event which occur simultaneously” (Brownie and Brownie 2007:132). Such constructions include “cut and break”-type events (40b). In adverbial SVCs, “a verb is used in an adverbial sense” (Brownie and Brownie 2007:136); in other words, as a modifier to a head verb (40c). These constructions clearly resemble what we have called head-modifier serialization and complex-event serialization in Āiwoo and Natügu.⁵

- (40) MUSSAU-EMIRA
- a. Ita sae tara-i=a ta ang=ghe mate=la.
 IPL.INCL go see-TR=3SG.O CONJ TAM=PAST die=PFV
 ‘Let’s go see him since he has died.’
- b. Vaeo ateva ghe kata pate=la oasa atea.
 shark SG:I PAST bite knock.down=PFV rope SG:II
 ‘The shark bit through the line.’
- c. Me a=ghe katuu saa-sakiaa=la.
 and 1SG=PAST fall RDP-ruin=PFV
 ‘And I fell down badly.’ (Brownie and Brownie 2007:133, 137)

5. The roman numerals I and II in (40b) represent different noun classes.

It should also be noted that Mussau-Emira has an aspectual serial verb construction, where the verbs *toka* 'sit' and *lao* 'go' can be used in construction with another verb as indicators of durative aspect; this suggests verb serialization as a possible source for aspect markers in Oceanic languages, though we have no evidence that any of the RSC aspect markers have such a source.

7. SERIALIZATION AND GRAMMATICALIZATION. Many of the elements of verb structure that Wurm (e.g., 1978, 1985, 1987) found to be "un-Austronesian" correspond to the elements that we have here analyzed as deriving from productive nuclear-layer verb serialization. For instance, Wurm (1987: 447–50) analyzes the initial elements of Äiwoo C&B verbs as "mode of action prefixes" and the second elements as "focusing suffixes"; the latter term is borrowed from descriptions of verbs in Buin, a Papuan language of Bougainville. Note that this analysis implies that the C&B verbs have no actual verb stem, but are made up entirely of "mode of action prefixes" and "focusing suffixes."

The situation in Natügu is rather more complex. It appears to be able to combine a rather larger number of elements into a single verb form than does Äiwoo, and for many of these elements no verbal origin is readily identifiable in the present-day language. For example, both languages have a large number of morphemes indicating the direction of the verbal event in various dimensions (e.g., deictic, up/down, along/across/backwards, etc). In Äiwoo, most of these morphemes either have an independent verbal use or show distributional properties suggesting a verbal origin; in Natügu, such an origin is much less evident. Likewise, though some of the elements in Natügu C&B verbs do have independent verbal uses, or at least strong formal and semantic similarities to known independent verbs, these are much fewer in number than those found in the parallel construction in Äiwoo.

This pattern suggests a process of grammaticalization that has gone further in Natügu than in Äiwoo. Many of the suffix slots—and the elements described as occurring in them—posited by Wurm (1992) for Natügu are given descriptions that are strongly suggestive of a lexical origin. In general, these are the slots found intervening between the verb stem and clearly grammatical markers such as the suffixed part of the negative marker and the subject suffixes; in other words, the same position where sequences of lexical roots are typically found in Äiwoo. Some examples of such slots are "change of state and appearance" (including such items as *-bö* 'disintegrating into fragments', *-më* 'broadening out', and *-lubü* 'achieving a higher degree of quality'), two slots for "object focus markers" (cf. the above comments for Äiwoo), three slots for "direction of action", (cf. above), and two for "adverbial insertions." While Wurm may have been mistaken in his analysis of Natügu as non-Austronesian, reanalysis of the verb suffix slots shows that he was essentially accurate with regard to the number of slots and their ordering synchronically (Archer and Boerger n.d.).

We suggest, then, that much of the complex verbal morphology in RSC languages has its origins in sequences of lexical items that could be productively combined into single grammatical words with a single set of inflections. Gradually, the form of these items in such complex constructions has been reduced, and their distribution restricted, until many of them have taken on the appearance of grammatical markers. In Äiwoo, this process is still fairly transparent in that many of the elements involved are still recognizable

as originating in lexical verbs or adverbs. In Natügu, the process of grammaticalization has gone farther, and the lexical origins of many of the morphemes of the verb complex are much less apparent; though as noted in 4.1.2 and section 5 above, many bound adverbs and V2 elements of C&B verbs have clearly lexical meanings.

We have not shown that *all* of the complexity in the RSC verb can be accounted for in terms of grammaticalization from serialization constructions; indeed, we do not think it is possible to do so. Firstly, some of the RSC verbal morphology clearly reflects Proto-Oceanic bound morphology; this is, of course, not a problem for the assumption that the languages are Oceanic in origin, but it is worth making explicit that we do not assume all of RSC verbal morphology to derive from serialization constructions. Secondly, even in cases where serialization may be a plausible source, it may no longer be possible to identify a verbal source or to demonstrate relics of verbal behavior for the elements in question. What we do believe we have shown is that verb serialization has played—and continues to play—a significant role in the development of the verb complex in the RSC languages, and that this accounts in a plausible way for some of the complexity that has been perceived as “un-Austronesian.”

As noted above, verb serialization is a pervasive feature of Oceanic languages. Indeed, it occurs in so many Oceanic subgroups that Crowley (2002:167–68) assumes that it must either have been present in Proto-Oceanic, or arisen immediately after its initial break-up. Given that verb serialization is also common in many Papuan languages, a possible source for its development in POC or post-POC would be contact with the Papuan languages in the Bismarcks area (Crowley 2002:167). This could, of course, be interpreted as meaning that the pervasive serialization in RSC languages is a “Papuan” feature. But if so, it is a Papuan feature common to Oceanic languages in general, and there is nothing special about RSC in this respect.

The analysis of RSC verb structure in terms of gradual grammaticalization of nuclear-layer verb serialization as the source of at least some of the elements of the verb complex solves a number of problems for the Reefs–Santa Cruz languages. Firstly, the verb serialization hypothesis provides a possible explanation for the very large inventory of verbal affixes found in RSC, particularly in the Santa Cruz languages. If these affixes originated as lexical verbs, there would naturally have been a large inventory of source items, covering a broad range of meanings, reflective of those assigned to the affixes synchronically. Secondly, it explains why Wurm (1976:650) finds the number of recognizable Austronesian forms to be much lower for verbs than for nouns and adjectives.⁶ The process we are suggesting of gradual erosion of lexical items down to, in many cases, monosyllabic roots, and the use of these roots to build up new complex forms, would obscure the relationship between the original lexemes and their cognates in other languages.

Typological structure does not provide direct evidence of genetic origin; the fact that verb serialization is common in Oceanic languages cannot in itself be considered evidence that the Reefs–Santa Cruz languages are Oceanic. However, we hope to have

6. It is unclear what Wurm means by “adjectives,” because this is an extremely marginal word class in RSC. Äiwoo has two items identified to date that might be classified as adjectives rather than verbs. Fewer than ten potential adjectives have been identified for Natügu. This, too, puts RSC in conformity with what has been proposed for Oceanic. Lynch, Ross, and Crowley posit no true adjectives for POC, but only adjectival verbs and adjectival nouns (2002:63).

shown that the verb structures in these languages cannot be used as an argument that the languages are *not* Oceanic, as has been done in previous literature, because the structures in question can be accounted for to a large extent in terms of processes that are well attested in Oceanic languages.

8. CONCLUSION. The assumption that the Reefs–Santa Cruz languages have a non-Austronesian substrate rests on three arguments. The first is the alleged lack of regular sound correspondences; the second is the analysis of the languages as having noun classes; and the third is the verb structure, assumed to be of a complexity unknown for Austronesian languages. As noted in the introduction, the first two have been shown in recent papers to rest on erroneous assumptions (Næss 2006, Ross and Næss 2007). We hope in this paper to have demonstrated that the third argument, too, is flawed; much of the complexity of the RSC verb structure either has a demonstrable Oceanic origin or may be plausibly explained as arising from the grammaticalization of nuclear-layer serial verb constructions. As both such constructions and their grammaticalization are commonly found in Oceanic languages, this leaves no linguistic evidence for a non-Austronesian substrate of the Reefs–Santa Cruz languages.

Why, then, has it taken 120 years, from the first mention of these languages in Codrington (1885), to establish a solid argument for the Oceanic origin of these languages? The grouping of the languages of Temotu Province into a single first-order subgroup of Oceanic, proposed in Ross and Næss (2007), suggests that the ancestral language was a very early offshoot of Proto-Oceanic. The arrival of the speakers of Temotu in the Reefs–Santa Cruz area at least 3,200 years ago correlates with the date given by archaeological evidence for the earliest Lapita settlements in the area (Spriggs 1997:129–36). The linguistic evidence thus supports the suggestion of Sheppard and Walter (2006) that the ancestor of the Reefs–Santa Cruz languages arrived in the Temotu area directly from the Oceanic homeland in the Bismarck Archipelago, skipping over the main Solomon Islands altogether. As mentioned above, the closest linguistic relatives of the languages of Temotu Province appears to be the St. Matthias languages of Mussau and Tench in the northern Bismarcks (Ross and Næss 2007:471–72).

In other words, the languages of Temotu Province broke off from POc very early, before the later Austronesian expansion down through the main Solomons chain. There is archaeological evidence of contact between the RSC area and other islands, particularly the homeland in the Bismarcks. But in spite of this, for a considerable period after the Temotu islands were settled, the RSC languages were relatively isolated in the Temotu area for upwards of 3,000 years, allowing ample time both for the grammaticalization of verb serialization into systems of affixes, as suggested above, and for other lexical and grammatical developments that have left the languages of Temotu Province looking very different from other Oceanic languages in Melanesia. We anticipate that further studies of the internal relationships between the languages of Temotu Province, and between them and the St. Matthias languages, will shed further light on these developments.

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