Niuean

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Niuean (ISO 639-3 code niu) is a Polynesian language spoken on the island of Niue, with an additional population of speakers living in New Zealand. Figure 1 indicates where Niue is located with respect to other neighboring islands in the South Pacific. The 2011 Niue Census of Populations and Households cited the number of individuals who had either basic or fluent spoken abilities at 1121 (with 101 non-speakers) (Statistics Niue 2012). English is the second most widely used language on the island. The 2013 New Zealand census cited 4548 individuals living in New Zealand who listed Niuean as one of their languages (Statistics New Zealand 2013). Niuean is classified as 'definitely endangered' by UNESCO (Moseley 2010). There are historically two distinct dialects: the older Motu dialect from the northern area, and the more recent Tafiti from the southern area. These dialect differences were once reflected in slight phonological differences in vocabulary items, but the differences have since eroded in the modern language (see McEwen 1970: ix). Previous research on Niuean phonetics and phonology includes a brief outline in Seiter (1980: x), two dictionaries (McEwen 1970, Sperlich 1997), and an article on vowel length (Rolle & Starks 2014). While these works provide an overview of some of the phenomena to be addressed below, this sketch attempts a more thorough documentation of the phonetic structures of Niuean, and provides novel acoustic and articulatory data from the language. Recordings accompanying this paper are of a male speaker (Mr. Krypton Okesene) and a female speaker (the second author).
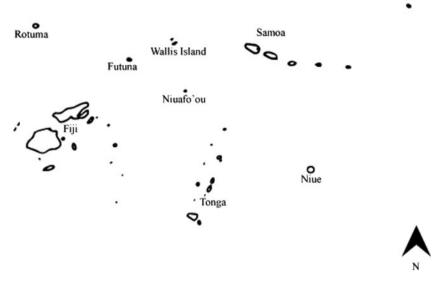
Figure 1 Map of Niue and surrounding islands.

Consonants

	Bilabial	Labio-dental		Dental	Alveolar	Velar	Glottal
Plosives	p			t		k	
Fricatives		f	v		(s)		h
Nasals	m				n	ŋ	
Lateral approximant				l			

Examples of each of these consonants are given below, with both phonetic and orthographic representations. In each case, the consonant in question appears in word-initial position.

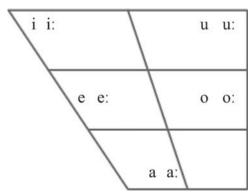|	IPA	ORTHOGRAPHY	GLOSS
p	ˈpala	*pala*	'to be wet'
t	ˈtala	*tala*	'story'
k	ˈkala	*kala*	'piece, strip'
f	ˈfala	*fala*	'hermit crab'
v	ˈvala	*vala*	'piece, particle'
s	ˈsali	*sali*	'uppercut in boxing' (loanword)
h	ˈhala	*hala*	'path, road'
m	ˈmala	*mala*	'minute particle, small piece'
n	ˈnafa	*nafa*	'to hit'
ŋ	ˈŋali	*gali*	'to gnaw'
l	ˈlala	*lala*	'a plant, a guava'

Figure 2 (Colour online) Palatograms of dental [t] (left) in the word [ˈutu] 'to fill' and alveolar [n] (right) in the word [ˈunu] 'to wash'.

The articulations of [t] and [l] are dental, while [n] and [s] are alveolar. This is supported by palatograms from a female native speaker (Figure 2).

There is some variation between [s] and [ts] before the front vowels [e] and [i]. In intervocalic position, /k/ tends to spirantize to [x]. The female production of *fakaleoaga* [faxaleoˈaŋa] 'sound system' illustrates this. This lenition is optional, and does not occur in some forms, such as the word *keke* [ˈkeke] 'traditional throwaway instrument', nor in most other instances of words with the causative prefix *faka-*. [s] occurs as an allophone of /t/ and also occurs in some loanwords (consider the name 'Jesus' pronounced as either [iˈesu] or [iˈetu] in Niuean). The approximant [ɹ] is found in some loanwords from English for some speakers, but is not common. The language lacks the approximants [j] and [w]. While there is no glottal stop in Niuean, there are phonetic traces of the glottal stop inherited from the ancestral language, which will be explained below.

Vowels

Phonetically there are five short vowels with five long counterparts. Long vowels in the language are orthographically indicated with a macron over the vowel. Examples illustrating these contrasts are as follows:

Table 1 Duration of short and long vowels in msec.

Vowel	Short	Long
i	230.0	367.0
u	82.5	299.0
e	96.0	285.5
o	148.5	291.5
a	117.0	258.5

i	ki	*ki*	'to'
iː	kiː	*kī*	'to fart'
u	ˈkula	*kula*	'red'
uː	kuː	*kū*	'short'
e	ˈkeke	*keke*	'traditional 'throwaway' instrument'
eː	keːˈkeː	*kēkē*	'to be cheeky'
o	ˈkoho	*koho*	'to cough'
oː	koˈkoː	*kokō*	'to vomit'
a	kaˈina	*kaina*	'home'
aː	kaiˈhaː	*kaihā*	'to steal'

The long and short vowels are presented as phonemic pairs, following the Polynesian tradition of considering vowel length as phonemic. However, while there is a phonetic durational difference between vowels, this does not mean to imply that vowel length constitutes an underlying phonemic distinction in the language. This issue will be expanded on below.

Duration data for the short and long vowels in the above words, for both the male and female speakers, is presented in Table 1. The mean duration for the short vowels (n = 10) is 134.8 msec (s.d. 59.2) and 300.3 msec (s.d. 46.7) for the long vowels (n = 10). The durations for the short vowel [i] are considerably longer than the other short vowels in this set, presumably due to the fact that it is found in a monosyllabic context. The durations for long [iː] are also longer than those for the other vowels, including [uː], which is in a similar monosyllabic context.

In the *Niue Language Dictionary*, a difference is reported between short vowels, long vowels, and long vowels derived from sequences of two short vowels ('rearticulated vowels'), a difference which is reflected in the orthography:

Short vowel:	aˈfua	*afua*	'fine'
Long vowel:	aːˈfou	*āfou*	'adze'
Rearticulated vowel:	aˈafu	*aafu*	'to be hot'

(Rolle & Starks 2014)

Rolle & Starks (2014) point out that long and rearticulated vowels are in complementary distribution: long vowels are simply sequences of identical vowels where the first is stressed, while rearticulated vowels involve stress on the second vocalic portion. In connected speech, long vowels and rearticulated vowels surface with comparable durations; however, there is a higher pitch on the final vowel of a rearticulated sequence; consider the difference between [aːˈfou] 'adze', without primary stress on the long vowel, versus [aˈafu] 'to be hot'.

The *Niue Language Dictionary* notes many rearticulated vowels in derived contexts, such as in reduplication: *ega* [ˈeŋa] 'to be rosy', *egaega* [eŋaˈeŋa] 'rosy things'; *ene* [ˈene] 'to poke', *eneene* [eneˈene] 'to poke continuously'. There is also a pause or glottalization that occurs medially in these forms, characteristic of a prosodic word boundary. Rearticulated

vowels also occur in contexts derived through affixation. The following examples illustrate how the prefix *faka-* 'to cause, to make' can attach to roots to create rearticulated vowels:

fakaleoˈaŋa *fakaleoaga* (faka-leo-aga) 'sound system' (female production [faxaleoaŋa])
faka:taˈaŋa *fakaatāaga* (faka-atā-aga) 'permit'
faka:taˈaŋa *fakaataaga* (faka-ata-aga) 'looking place'

Derived sequences of vowels whereby a long vowel is followed by an identical short vowel may involve a production that includes a slight pause, or glottalization before the rearticulated second vowel portion. This is the case for the female production of the word [fakaata̯ˈaŋa] 'permit', while the male production involves only a single long vowel [fakaataˈaŋa]. The same phenomenon occurs in root words which historically had a glottal stop between two vowels, and which has been lost in modern Niuean. Examples include *mooli* [moˈoli] 'true' and *maama* [maˈama] 'bright', where there is a glottal stop between the identical vowels in the related Tongan language, and *laā* [laˈaː] 'sun' (from Proto-Polynesian *laqaa* 'sun'). In most cases, there is no residual glottalization, and the vowels are produced as long vowels (with the exception of [laˈaː] 'sun', which involves a short vowel plus an identical long vowel sequence), though the female production of [laˈaː] 'sun' involves glottalization between the two vowels.

Conventions
As noted above, sequences of the dental stop followed by the high front vowel surface as [si] or as [tsi]; this is also true in contexts preceding the mid front vowel [e]. This is evident in some loans, where [s] occurs preceding [i] or [e]: *sēvolo* [seːˈvolo] 'devil', *tī* [si] 'tea'. The only case in our corpus of a native word having [t] followed by a front vowel is in a contracted form: the word *tuai* (as in *oti tuai* [ˈosi tuˈai] 'to be finished') can be contracted to *oti tai* [tai] or *oti tei* [tei], due to loss of the high back vowel at normal speech rates. Some other loanwords retain [t] instead of [s] before [i, e]: *pitiluti* [pitiˈluti] 'beetroot', *pateta* [paˈteta] 'potato'.

Stress
Word-level stress falls on the penultimate mora (see the *Niue Language Dictionary*, and Rolle & Starks 2014), a pattern characteristic of many other Polynesian languages. Examples of word stress include the following (where stress is here indicated for monosyllabic forms):

ˈea   *ea*   'to appear'
ˈpaː   *pā*   'to burst, explode'
ˈmoa   *moa*   'fowl, chicken'
ˈhina   *hina*   'to be white, blank'
ˈŋisi   *giti*   'to spurt out'
ˈlaŋi   *lagi*   'sky, heaven'
noˈnaː   *nonā*   'to be pleased with'
fuˈfuː   *fufū*   'to hide'
hiˈŋafi   *higafi*   'strength, energy'
faˈŋota   *fagota*   'to gather shellfish on the reef'
paˈeŋa   *paega*   'heap'
feˈiŋa   *feiga*   'to carry on doing something'
moˈua   *moua*   'to get, obtain'
maseˈafu   *mateafu*   'to lose or shed leaves'

This stress pattern results in 'breaking' (the rearticulation of the vowel) when a diphthong or long vowel occurs before __CV# (see the *Niue Language Dictionary* and Rolle & Starks 2014). The effect is a prominence on the latter vocalic portion, including a rise in pitch, and often with rearticulation of the vowel, as discussed above.

haˈana	*haana*	'3rd singular possessive pronoun'
ˌfeːkoˈuna	*feekouna*	'to send someone to do something'
paˈave	*paave*	'braces (for trousers)'

According to the *Niue Language Dictionary*, pretonic surface long vowels also attract a secondary stress:

ˌkaːˈlaŋi	*kālagi*	'a bird'
ˌfaːˈvale	*fāvale*	'fierce, savage, wild'
ˌfaːˈhia	*fāhia*	'be able'
ˌnoːˈtaki	*nōtaki*	'to tie, to bind'

Rolle & Starks (2014) note that secondary stress is not entirely consistent for some speakers.

Syllable structure

Niuean has a relatively simple syllable structure: single onset consonants are allowed, and a nucleus consists of a vowel. The *Niue Language Dictionary* notes that there are some diphthongs which behave as single units with respect to syllable structure (Sperlich 1997: 9), i.e. as a single nucleus. Sequences that we can identify as nuclei include [ae, ai, ao, au, ea, ei, eo, eu, ia, ie, io, iu, oa, oe, oi, ou, ua, ue, ui, uo]. Examples of syllables are as follows:

	V			CV		
Short vowel	e	*e*	'AGENT case'	ka	*ka*	'and'
	a	*a*	'PROPER ARTICLE'	ki	*ki*	'GOAL case'
Long vowel	eː	*ē*	'yes'	ˌkaːˈkia	*kākia*	'neck',
	oː	*ō*	'go'	ˌkeːˈkeː	*kēkē*	'to be cheeky'
Diphthong	auˈloa	*auloa*	'all together'	kaiˈhaː	*kaihā*	'to steal'

Intonation

Clemens (2014) notes that there are H phrasal pitch accents on the stressed syllable of the lexical head, followed by a boundary L-, and the *Niue Language Dictionary* (Sperlich 1997: 10) notes that most sentences end in rising intonation; however, the data here indicate that there is a consistent pitch accent found near the left edge of clauses. This is illustrated with a pragmatically neutral declarative statement, where the nuclear pitch accent falls on the stressed syllable of *tutala* (see Figure 3):[1]

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    H*                      L%
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[tuˈtala e fiˈfine ke he taˈŋata taˈane]
Tutala e   fifine   ke he tagata taane.
talk   ERG woman to ABS person man
'The woman talked to the man.'

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[1] Glosses used are: 2, 3 = 2nd, 3rd person; ABS = absolute; ANAPH = anaphor; CAUS = causative; COMP = complementizer; DET = determiner; DU = dual; ERG = ergative; FOC = focus; GEN = genitive; HAB = habitual; INT = intensifier; IPFV = imperfective; PFV = perfective; PL = plural; PN = proper noun; POSS = possessive; Q = question; REL = relativizer; SG = singular. Note that words with the causative prefix *faka-* are not always morphologically segmented due to a lack of semantic compositionality in meaning.
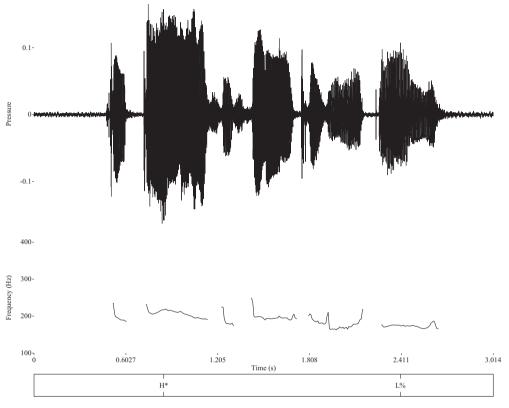
Figure 3 Waveform and pitch trace of female production of [tuˈtala e fiˈfine ke he taˈŋata taˈane] 'The woman talked to the man'.

Since the word order of the language is typically VSO, the nuclear pitch accent appears on the predicate, which is in initial position. In focused constructions, the focused constituent (*tagata taane*) appears preverbally and bears the accent (see Figure 4):

H*   L%
[ko e taˈŋata taˈane ne tuˈtala e fiˈfine ki ai]
Ko e   tagata   taane ne tutala e   fifine ki ai.
FOC ABS person   man   REL talk   ERG woman to ANAPH
'It is the man that the woman is talking to.'

This is also true of *wh*-questions, consistent with the idea that *wh*-words in clause-initial position constitute the predicate in Niuean (Potsdam & Polinsky 2011). Here, the nuclear pitch accent falls on the focus marker *ko* (see Figure 5):

H*   L%
[ko hai ne tuˈtala e fiˈfine ki ai]
Ko hai ne tutala e   fifine ki ai?
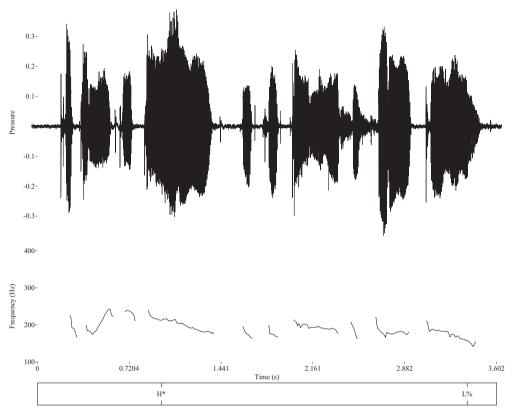FOC who REL talk   ERG woman to ANAPH
'Who did the woman talk to?'

Figure 4 Waveform and pitch trace of female production of [ko e taˈŋata taˈane ne tuˈtala e fiˈfine ki ai] 'It is the man that the woman is talking to'.

Finally, yes/no questions also exhibit the cross-linguistically unusual pattern of falling intonation (see Figure 6):

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     H*                              L%
[tuˈtala naˈkai e fiˈfine ke he taˈŋata taˈane]
Tutala nakai e    fifine   ke he  tagata taane?
talk   Q      ERG woman  to  ABS person man
'Did the woman talk to the man?'
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Recorded passage

This narrative is a direct translation of 'The North Wind and the Sun', which was read by each speaker. The orthographic version follows the broad transcription, as does a version with interlinear glosses.

Phonetic version

ko e feˈiŋa e maˈtaŋi tokeˈlau mo e laˈaː he faː e taufeˈtoko ko hai ha laˈua ne mua ˈatu e maloˈloː he maŋaˈaho ne ˈhoko mai ai e taˈŋata ˈfano feˈnoŋa ne tui paˈleu maˈfana. kua taˈlia ai e laˈua ke feˈtoko ke kiˈsia ko hai ha laˈua ne mua ˈatu e maloˈloː. ko e ˈpatu ne mua atu e maloˈloː mai ha laˈua niː ka maˈeke ke fakalaŋaˈlaŋa e taˈŋata ˈfano feˈnoŋa
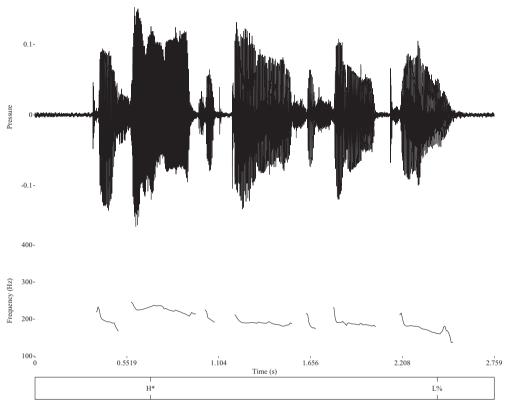
Figure 5 Waveform and pitch trace of female production of [ko hai ne tuˈtala e fiˈfine ki ai] ‘Who did the woman talk to?’.

ke aˈaki e haˈana a peleˈue maˈfana. kua uˈulo he maˈtaŋi tokeˈlau ke he fakaosiˈaŋa he haˈana a tau uˈulo ke ˈlali ke fakalaŋaˈlaŋa e taˈŋata ˈfano feˈnoŋa ke aˈaki e haˈana a peleˈue maˈfana ka e au ˈatu ni e taˈofi he taˈŋata ˈfano feˈnoŋa e haˈana a peleˈue maˈfana ˈasi fiu tuˈai ni e maˈtaŋi tokeˈlau si fakaˈosi e tau uˈulo haˈana. na kaˈmata ni e laˈa: ke kiˈkila si aˈaki aŋaˈtaha ni he taˈŋata ˈfano feˈnoŋa e haˈana a peleˈue maˈfana, ˈasi talaˈhau ai ni he maˈtaŋi tokeˈlau mo e haˈana a ˈŋutu ko e laˈa: ne maloˈlo: mai ha laˈua.

Orthographic version

Ko e feiga e Matagi Tokelau mo e Laā he fā e taufetoko ko hai ha laua ne mua atu e malolo he magaaho ne hoko mai ai e tagata fano fenoga ne tui peleue mafana. Kua talia ai e laua ke fetoko ke kitia ko hai ha laua ne mua atu e malolo. Ko e patu ne mua atu e malolo mai ha laua nī ka maeke ke fakalagalaga e tagata fano fenoga ke aaki e haana a peleue mafana. Kua uulo he Matagi Tokelau ke he fakaotiaga he haana a tau uulo he lali ke fakalagalaga e tagata fano fenoga ke aaki e haana a peleue mafana ka e au atu ni e taofi he tagata fano fenoga e haana a peleue mafana ati fiu tuai ni e Matagi Tokelau ti fakaoti e tau uulo haana. Na kamata ni e Laā ke kikila ti aaki agataha ni he tagata fano fenoga e haana a peleue mafana, ati talahau ai ni he Matagi Tokelau mo e haana a gutu ko e Laā ne malolo mai ha laua.
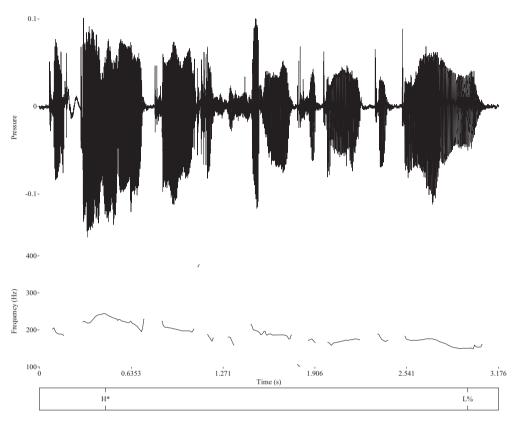
Figure 6 Waveform and pitch trace of female production of [tuˈtala naˈkai e fiˈfine ke he taˈŋata taˈane] 'Did the woman talk to the man?'.

Orthographic glossed version

Ko	e	feiga	e	Matagi	Tokelau	mo	e	Laā	he	fā	e	taufetoko
FOC	IPFV	carry.on	ABS	wind	north	with	ABS	sun	ERG	HAB	IPFV	argue

ko	hai	ha	laua	ne	mua	atu	e	malolo	he	magaaho	ne	hoko	mai
FOC	who	POSS	2.DU	REL	win	COMP	IPFV	strong	ERG	time		REL	arrive	here

ai	e	tagata	fano	fenoga	ne	tui	peleue	mafana.
ANAPH	ABS	person	go	travel	REL	wear	overcoat	warm

'The North Wind and the Sun were arguing to see which of them was stronger when a traveller arrived wearing a warm overcoat.'

Kua	talia	ai	e	laua	ke	fetoko	ke	kitia	ko	hai	ha	laua	ne	mua
PFV	agree	then	ABS	2.DU	to	compete	to	see	FOC	who	POSS	2.DU	REL	win

atu	e	malolo.
COMP	DET	strong

'They agreed to compete with each other to see who was stronger.'

Ko   e   patu   ne   mua atu   e   malolo mai   ha   laua nī   ka
FOC ABS 3.SG.PN REL win COMP DET strong COMP POSS 2.DU only if

maeke ke fakalagalaga e   tagata fano fenoga ke aaki   e   haana a
can   to provoke   ABS person go   travel to remove ERG 3SG   ABS

peleue   mafana.
overcoat warm

'The one who wins is the strongest between the two of them who will be able to cause the
traveller to take off his warm overcoat.'

Kua uulo he   matagi tokelau ke he   faka-otiaga he haana a   tau uulo he
PERF blow ERG wind   north   to ABS CAUS-end   of 3SG   POSS PL blow PFV

lali ke fakalagalaga e   tagata fano fenoga ke aaki   e   haana a
try to provoke   ABS person go   travel to remove ERG 3SG   ABS

peleue   mafana ka e   au   atu   ni   e   taofi he tagata fano fenoga e
overcoat warm   but COMP COMP INT PERF hold ERG person go   travel ERG

haana a   peleue   mafana ati   fiu   tuai ni   e   Matagi Tokelau
3SG   ABS overcoat warm   and.then fed.up COMPL INT ABS wind   north

ti   faka-oti e   tau uulo haana.
and CAUS-end POSS PL blow 3SG

'The North Wind blew to the ends of his blowing ability to try and cause the traveller to
take off his warm overcoat but the traveller just kept holding on to his warm overcoat and
so the North Wind was fed up and stopped his blowing.'

Na   kamata ni   e   Laā ke kikila ti   aaki   agataha   ni
as.soon.as   start INT ABS sun to shine and.so take.off immediately INT

he   tagata fano fenoga e   haana a   peleue   mafana,
ERG person go   travel ERG 3SG   ABS overcoat warm

ati   talahau ai   ni   he   Matagi Tokelau mo e   haana   a
and.then tell   ANAPH INT GEN wind   north   and with 3.SG.PN POSS

gutu ko e   Laā ne malolo mai   ha   laua.
mouth FOC IPFV sun REL strong COMP POSS 2.DU

'As soon as the Sun started to shine, the traveller immediately took off his warm overcoat
and the North Wind had to say with his own mouth that the Sun was the stronger one
between them.'

Acknowledgements

References

Clemens, Lauren. 2014. *Prosodic noun incorporation and verb-initial syntax*. Ph.D. dissertation, Harvard University.

McEwen, J. M. 1970. *Niue dictionary*. Wellington, New Zealand: Department of Maori and Island Affairs.

Moseley, Christopher (ed.). 2010. *Atlas of the world's languages in danger*, 3rd edn. Paris: UNESCO Publishing. http://www.unesco.org/culture/en/endangeredlanguages/atlas (retrieved 8 October 2017).

Potsdam, Eric & Maria Polinsky. 2011. Questions and word order in Polynesian. In Claire Moyse-Faurie & Joachim Sabel (eds.), *Topics in Oceanic morphosyntax* (Trends in Linguistics Studies and Monographs 239), 83–109. Berlin: Mouton de Gruyter.

Rolle, Nicholas & Donna Starks. 2014. Vowel length in Niuean. *Oceanic Linguistics* 53(2), 273–299.

Seiter, William J. 1980. *Studies in Niuean syntax*. New York: Garland.

Sperlich, Wolfgang B. (ed.). 1997. *Tohi vagahau Niue: Niue language dictionary*. Honolulu, HI: University of Hawai'i Press.

Statistics New Zealand. 2013. *2013 Census population and dwelling tables – regional council area, territorial authority area, and Auckland local board area*. http://statistics.govt.nz/Census/2013-census/data-tables/population-dwelling-tables.aspx (retrieved 8 October 2017).

Statistics Niue. 2012. Niue census of populations and households 2011. http://prism.spc.int/images/census_reports/Niue_2011_Population_Households_Census.pdf (retrieved 8 October 2017).