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).
Consonants

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosives</td>
<td>p</td>
<td>t</td>
<td>k</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>f</td>
<td>v</td>
<td>(s)</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasals</td>
<td>m</td>
<td></td>
<td>n</td>
<td>ŋ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral approximant</td>
<td></td>
<td></td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>IPA</th>
<th>Orthography</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>‘pala</td>
<td>pala ‘to be wet’</td>
</tr>
<tr>
<td>t</td>
<td>‘tala</td>
<td>tala ‘story’</td>
</tr>
<tr>
<td>k</td>
<td>‘kala</td>
<td>kala ‘piece, strip’</td>
</tr>
<tr>
<td>f</td>
<td>‘fala</td>
<td>fala ‘hermit crab’</td>
</tr>
<tr>
<td>v</td>
<td>‘vala</td>
<td>vala ‘piece, particle’</td>
</tr>
<tr>
<td>s</td>
<td>‘sali</td>
<td>sali ‘uppercut in boxing’ (loanword)</td>
</tr>
<tr>
<td>h</td>
<td>‘hala</td>
<td>hala ‘path, road’</td>
</tr>
<tr>
<td>m</td>
<td>‘mala</td>
<td>mala ‘minute particle, small piece’</td>
</tr>
<tr>
<td>n</td>
<td>‘nafa</td>
<td>nafa ‘to hit’</td>
</tr>
<tr>
<td>ŋ</td>
<td>‘ŋali</td>
<td>ŋali ‘to gnaw’</td>
</tr>
<tr>
<td>l</td>
<td>‘lala</td>
<td>lala ‘a plant, a guava’</td>
</tr>
</tbody>
</table>
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* [faxaleo'anga] ‘sound system’ illustrates this. This lenition is optional, and does not occur in some forms, such as the word *keke* ['keke] ‘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 [i'esu] or [i'etu] in Niuean). The approximant [j] 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:
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: aʻfua afua ‘fine’
Long vowel: aʻfou āfou ‘adze’
Rearticulated vowel: aʻafu 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 [aʻfou] ‘adze’, without primary stress on the long vowel, versus [aʻafu] ‘to be hot’.

The Niue Language Dictionary notes many rearticulated vowels in derived contexts, such as in reduplication: ega [eŋa] ‘to be rosy’, egaega [eŋa'eŋa] ‘rosy things’; ene [eŋe] ‘to poke’, eneene [ene'ene] ‘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:

fakaleo'anga *fakaleoaga* (faka-leo-aga) ‘sound system’ (female production [faxaleoaŋa])
fakaata'anga *fakaataaga* (faka-atā-aga) ‘permit’
fakaata'anga *fakaataaga* (faka-atā-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 *fakaata'anga* ‘permit’, while the male production involves only a single long vowel *fakaata* ‘sun’. 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* [mo'oli] ‘true’ and *maama* [ma'ama] ‘bright’, where there is a glottal stop between the identical vowels in the related Tongan language, and *laa* [la'a] ‘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 *laa* ‘sun’, which involves a short vowel plus an identical long vowel sequence), though the female production of *[la'a]* ‘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 [ti]; 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* [se:volo] ‘devil’, *ti* [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* [ʻosi tu'ai] ‘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* [piti'luti] ‘beetroot’, *pateta* [pa'teta] ‘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):

| 'ea | ea | ‘to appear’ |
| 'pa: | pā | ‘to burst, explode’ |
| 'moa | moa | ‘fowl, chicken’ |
| 'hina | hina | ‘to be white, blank’ |
| 'niisi | giti | ‘to spurt out’ |
| 'laŋi | lagi | ‘sky, heaven’ |
| no'na: | nonā | ‘to be pleased with’ |
| fu: | fu: | ‘to hide’ |
| hi'ŋafi | higafi | ‘strength, energy’ |
| fa'ŋota | fagota | ‘to gather shellfish on the reef’ |
| pa'eqa | paega | ‘heap’ |
| fe'ina | feiga | ‘to carry on doing something’ |
| mo'ua | moua | ‘to get, obtain’ |
| mase'afu | mateafu | ‘to lose or shed leaves’ |

https://doi.org/10.1017/500251003170000500 Published online by Cambridge University Press
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.

ha'ana haana ‘3rd singular possessive pronoun’
ˌfe:ko'una feekouna ‘to send someone to do something’
pa'ave paave ‘braces (for trousers)’

According to the Niue Language Dictionary, pretonic surface long vowels also attract a secondary stress:
ˌka:laŋ kašan ‘a bird’
ˌfaːvale fažale ‘fierce, savage, wild’
ˌfaː'hiə fašia ‘be able’
ˌnoːtaki nətaki ‘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, oa, oe, oi, ou, ua, ue, ui, uo]. Examples of syllables are as follows:

<table>
<thead>
<tr>
<th>V</th>
<th>Short vowel</th>
<th>Long vowel</th>
<th>Diphthong</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>e</td>
<td>e:</td>
<td>au:'loa</td>
</tr>
<tr>
<td>a</td>
<td>a</td>
<td>o:</td>
<td>auloa</td>
</tr>
</tbody>
</table>

**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

\[
\text{H}\ast \ L% \\
[tu'tala e fi'fine ke he ta'ŋata ta'ane] \\
\text{talk } \text{ERG woman to } \text{ABS person man} \\
\text{‘The woman talked to the man.’}
\]

¹ Glosses used are: 2, 3 = 2nd, 3rd person; ABS = absolutive; 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.
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):

\[
\text{H}^* \quad \text{L}\% \\
[ko e ta'ŋata ta'ane ne tu'tala e fi'fine ki ai] \\
\text{FOC ABS person man REL talk ERG woman to ANAPH} \\
\text{‘It is the man that the woman is talking to.’}
\]

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):

\[
\text{H}^* \quad \text{L}\% \\
[ko hai ne tu'tala e fi'fine ki ai] \\
\text{FOC who REL talk ERG woman to ANAPH} \\
\text{‘Who did the woman talk to?’}
\]
Finally, yes/no questions also exhibit the cross-linguistically unusual pattern of falling intonation (see Figure 6):

\[
\text{H}^* \quad \text{L}\%
\]

[tu'tala na'kai e fi'fine ke he ta'ŋata ta'ane]
Tutala nakai e fifine ke he tagata taane? 
‘Did the woman talk to the man?’

**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 fe'iŋa e ma'taŋi toke'lau mo e la'a: he fa; e taufe'toko ko hai ha la'ua ne mua 'atu e malo'lo; he maŋa'aho ne 'hoko mai ai e ta'ŋata 'fano fe'noŋa ne tui pa'leu ma'fana. kua ta'lia ai e la'ua ke fe'toko ke ki'sia ko hai ha la'ua ne mua 'atu e malo'lo: ko e 'patu ne mua atu e malo'lo: mai ha la'ua ni: ka ma'eke ke fakalaŋa'laŋa e ta'ŋata 'fano fe'noŋa
Figure 5 Waveform and pitch trace of female production of [ko hai ne tu‘tala e fi‘fine ki ai] ‘Who did the woman talk to?’.  

ke a’aki e ha’ana a pele‘ue ma‘fana. kua u‘ulo he ma‘taŋi toke‘lau ke he fakaosi’aŋa he ha’ana a tau u‘ulo ke ‘lali ke fakalaŋa‘laŋa e taŋata ‘fano fe‘noŋa ke a‘aki e ha’ana a pele‘ue ma‘fana ka e au ‘atu ni e ta‘ofī he taŋata ‘fano fe‘noŋa e ha’ana a pele‘ue ma‘fana ‘asi fiu tu’ai ni e ma‘taŋi toke‘lau si faka‘osi e tau u‘ulo ha‘ana. na ka‘mata ni e la‘a: ke ki‘kila si a‘aki aŋa‘taha ni he taŋata ‘fano fe‘noŋa e ha‘ana a pele‘ue ma‘fana, ‘asi tala‘hau ai ni he ma‘taŋi toke‘lau mo e ha‘ana a ‘jutu ko e la‘a: ne malo‘lo: mai ha la‘ua.

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 maeeke ke fakalagalaga e tagata fano fenoga ke aaki e haana a peleue mafana. Kua uulo he Matagi Tokelau ke he fakaotiga 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 taofī he tagata fano fenoga e haana a peleue mafana ati fiu tu’ai 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 \([tu\text{'}ta\text{l}a \ na'kai \ e \ fi'\text{'}fine \ ke \ he \ ta'\text{'}ŋata \ ta'\text{'}ane]\) ‘Did the woman talk to the man?’.

Orthographic glossed version

Ko e feiga e Matagi Tokelau mo e Laâ he fâ 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.’

https://doi.org/10.1017/S0025100317000500 Published online by Cambridge University Press
Ko e patu ne mua atu e malolo mai ha laua ni 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

Thanks to Krypton Okesene, two anonymous reviewers, and Adrian Simpson and Amalia Arvaniti
for helpful comments. All errors are our own.
References


