Dissimilation of /t/ to [k] in Niʻihau Hawaiian

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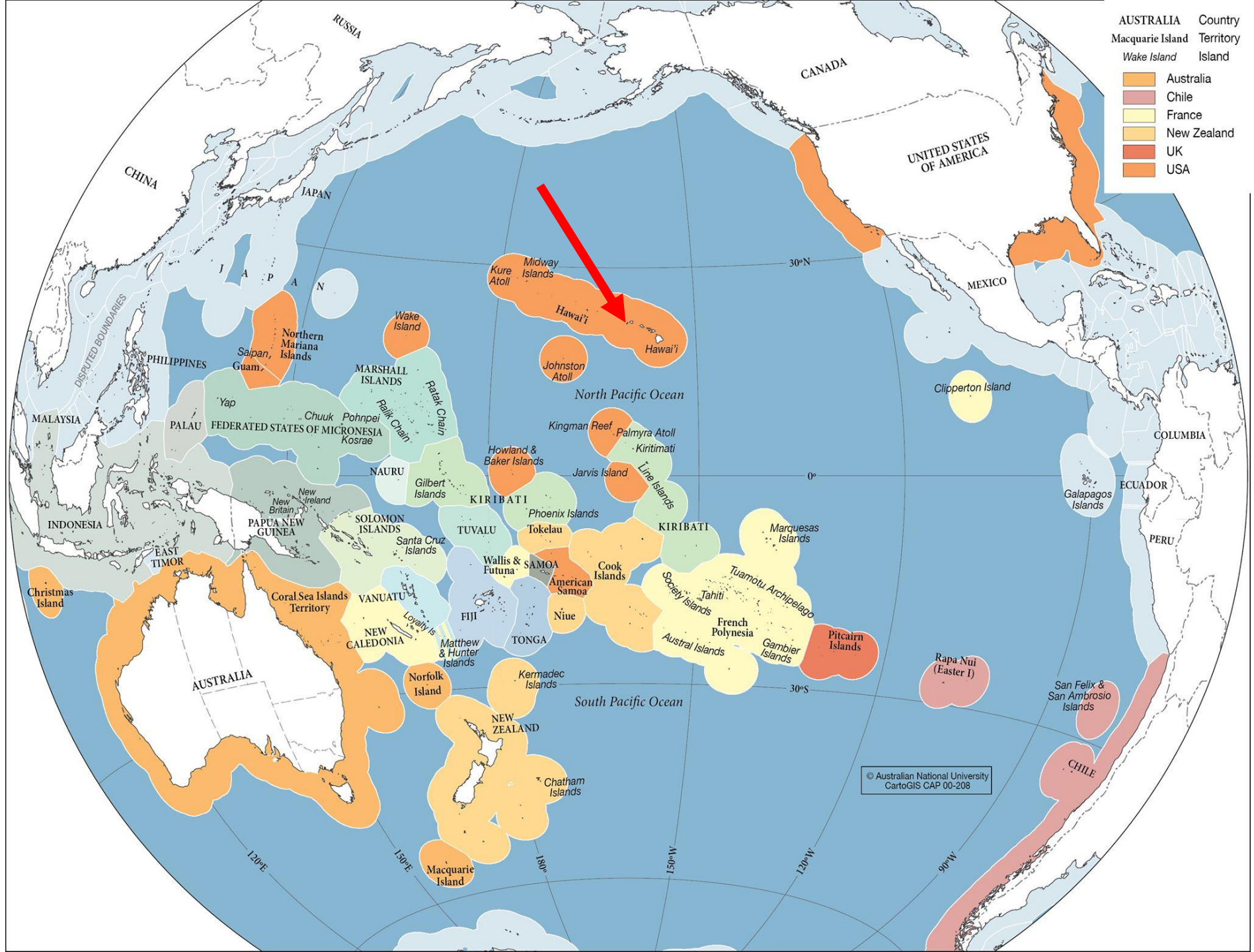
[mot^{h}] April 5, 2025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Chatham Islands
Macquarie Island
Clipperton Island
COLUMBIA
ECUADOR
Galapagos Islands
PERU
Rapa Nui (Easter I)
San Felix & San Ambrosio Islands
CHILE
30°N
0°
30°S
120°E
150°E
180°
150°W
120°W
90°W
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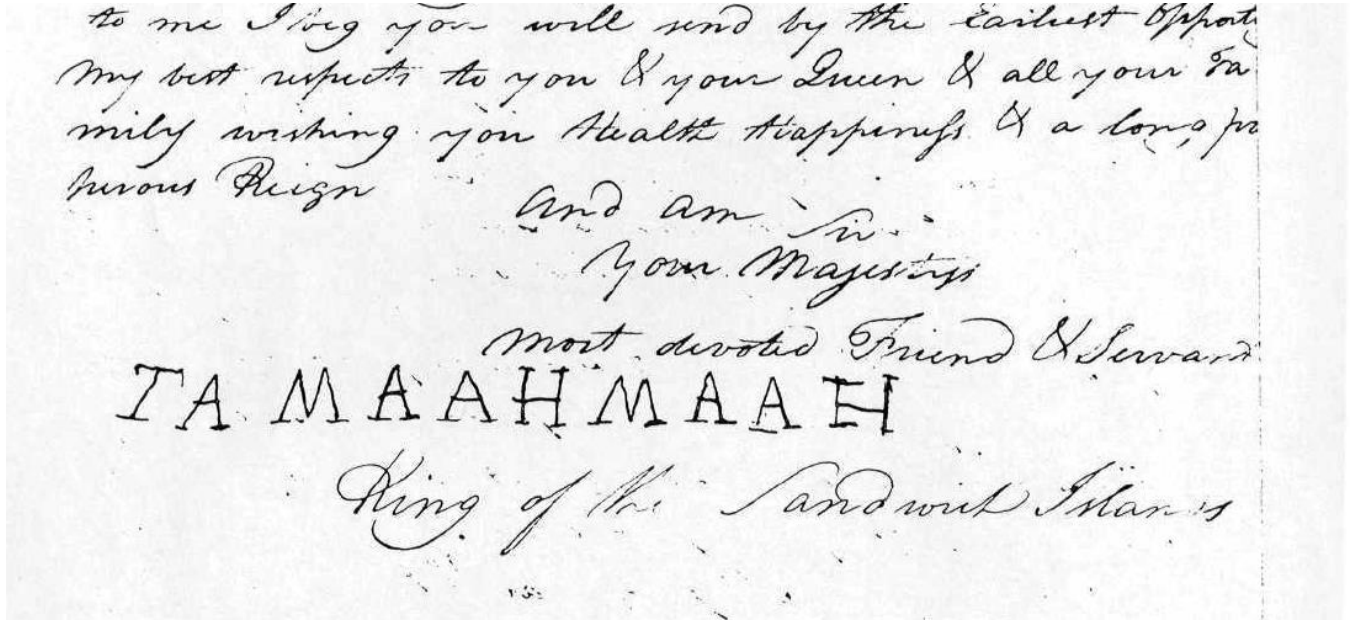
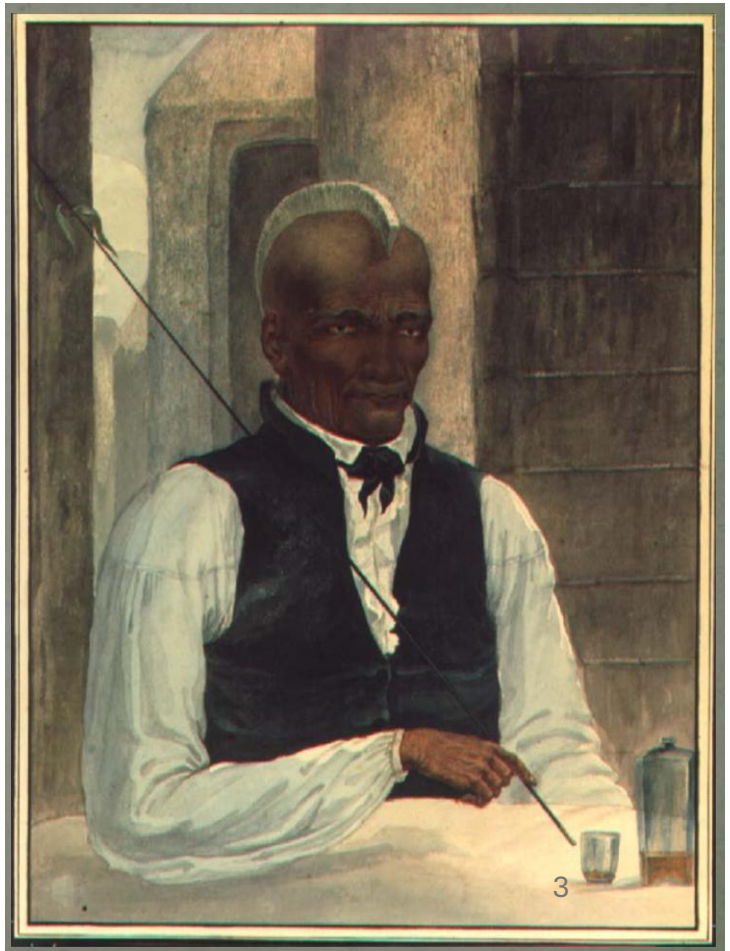
ʻŌlelo Hawaiʻi

- Austronesian > Malayo-Polynesian > Oceanic > Polynesian
- Settlement by ~1000 AD
- European contact beginning 1778
- Unification under Kamehameha I by 1810


to me I beg you will send by the Earliest Opport
My best respects to you & your Queen & all your Fa
mily wishing you Health Happiness & a long pr
ous Reign
And am Sir
Your Majestys
Most devoted Friend & Servant
TA MAAHMAAH
King of the Sandwich Islands

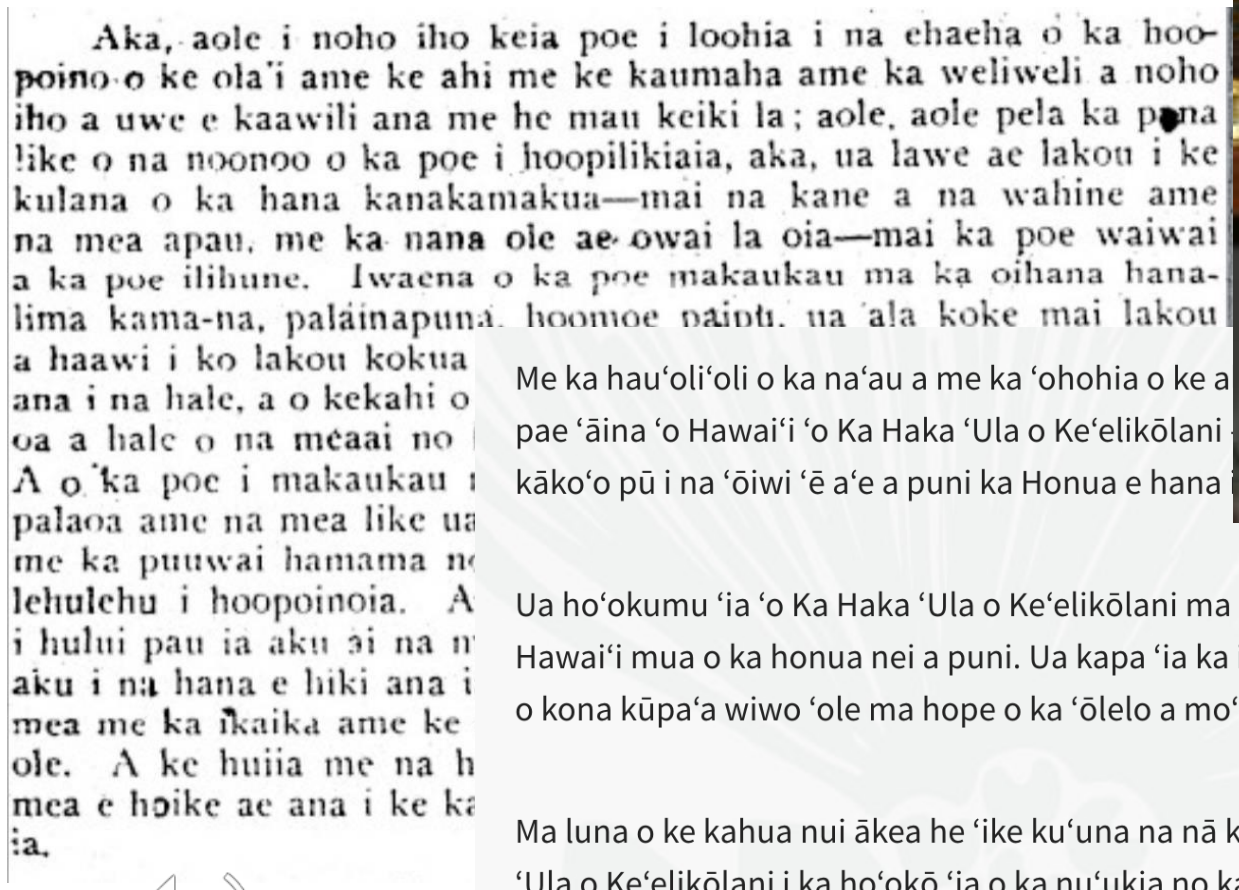


Consonants (Parker Jones 2018)

	Bilabial	Labio-dental	Alveolar	Velar	Glottal
Nasal	m		n		
Plosive	p			k	ʔ
Fricative		v			h
Lateral			l		

m	ˈmaka	*maka*	‘eye’	n	ˈnaka	*naka*	‘quiver’	
p	ˈpaka	*paka*	‘strain’	k	ˈkaka	*kaka*	‘rinse’	ʔ ˈʔaka *‘aka* ‘laugh’
v	ˈvaka	*waka*	‘sharp’					h ˈhaka *haka* ‘shelf’
				l	ˈlaka	*laka*	‘tame’	

Orthography



Aka, aole i noho iho keia poe i loohia i na ehaeha o ka hoo-
poino o ke ola'i ame ke ahi me ke kaumaha ame ka weliweli a noho
iho a uwe e kaawili ana me he mau keiki la; aole, aole pela ka pana
like o na noonoo o ka poe i hoopilikiaia, aka, ua lawe ae lakou i ke
kulana o ka hana kanakamakua—mai na kane a na wahine ame
na mea apau, me ka nana ole ae owai la oia—mai ka poe waiwai
a ka poe ilihune. Iwaena o ka poe makaukau ma ka oihana hana-
lima kama-na, palainapuna, hoomoe paipu, ua ala koke mai lakou
a haawi i ko lakou kokua
ana i na hale, a o kekahi o
oa a hale o na meaai no
A o ka poe i makaukau
palaoa ame na mea like ua
me ka puuwai hamama n
lehulehu i hoopoinoia. A
i hului pau ia aku oi na n
aku i na hana e hiki ana i
mea me ka ikaika ame ke
ole. A ke huiia me na h
mea e hoike ae ana i ke ka
ia.

Me ka hauʻoliʻoli o ka naʻau a me ka ʻohohia o ke a
pae ʻāina ʻo Hawaiʻi ʻo Ka Haka ʻUla o Keʻelikōlani
kākoʻo pū i na ʻōiwi ʻē aʻe a puni ka Honua e hana

Ua hoʻokumu ʻia ʻo Ka Haka ʻUla o Keʻelikōlani ma ke Kulanui o Hawaiʻi ma Hilo i ka makahiki 1997, ʻo ia ke Koleke ʻōlelo Hawaiʻi mua o ka honua nei a puni. Ua kapa ʻia ka inoa no ke aliʻi wahine ʻo Luka Keʻelikōlani Keanolani Kanāhoahoa ma muli o kona kūpaʻa wiwo ʻole ma hope o ka ʻōlelo a moʻomeheu Hawaiʻi.

Ma luna o ke kahua nui ākea he ʻike kuʻuna na nā kūpuna mai, he ʻimi nā kumu, nā haumāna, a me nā limahana o Ka Haka ʻUla o Keʻelikōlani i ka hoʻokō ʻia o ka nuʻukia no ka pono o nā poʻe a pau o Hawaiʻi nei.

“a maitaʻi ta ʻai o kēlā ʻano kalo piʻi nō mākou”
- David Kaʻalakea, Kīpahulu, Maui

Metrical structure (Parker Jones 2010)

	$\breve{V}_1$	$\bar{V}_1$
Monophthongs	$(C)\breve{V}_1$ **Light**	$(C)\bar{V}_1$ **Heavy**
Diphthongs	$(C)\breve{V}_1\breve{V}_2$ **Heavy**	$(C)\bar{V}_1\breve{V}_2$ **Heavy**

Table 4.2: Four syllable types, adapted from Schütz 1981:22

(5.21) **Metrical-foot rules:**

$$\Sigma \rightarrow \sigma_H$$
$$\Sigma \rightarrow \sigma_H\ \sigma_L$$
$$\Sigma \rightarrow \sigma_L\ \sigma_L$$

(5.20) **Prosodic-word rules:**

$$\omega \rightarrow \Sigma$$
$$\omega \rightarrow \sigma_L\ \Sigma$$

Metrical structure (Parker Jones 2010)

- My notation:
  - {foot}
  - <Pwd>

<{ˈku.la}>

<ka.{ˈla.ka}>

<{ˌlaː}><{ˈkou}>

<ka.{ˌli.ki}><{ˈma.ka}>

(5.21) **Metrical-foot rules:**

$\Sigma \rightarrow \sigma_H$

$\Sigma \rightarrow \sigma_H\ \sigma_L$

$\Sigma \rightarrow \sigma_L\ \sigma_L$

(5.20) **Prosodic-word rules:**

$\omega \rightarrow \Sigma$

$\omega \rightarrow \sigma_L\ \Sigma$

Ni‘ihau Hawaiian speakers

~300? family members

~50-150 full-time residents

Niʻihau Hawaiian

- Very isolated, recognized as distinct dialect
- Niʻihau-oriented L1 speakers (Niʻihau & Kauaʻi)
- Childhood acquisition from surrounding community in most domains
- Transmission now may be threatened

Olelo Niihau Orthography

- No long vowel marking
- Typically all /t~k/ spelled <k>
- Generally no ‘okina indicating /ʔ/
- Usage of ’ apostrophe to distinguish certain high-frequency minimal pairs
  - kou *your* vs. ko’u *my*
  - loa *much* vs. lo’a *get*

mai na kula kamalii mai. I ka wa i hookumu ia ai keia mau kula, o wau pu kekahi kumu i komo i loko o keia hoolala ana i kula kamalii olelo Kanaka wale no. Hoomanao hoi au i ka hele kino ana oʻu me kekahi kupa o Niihau me na keiki o ka Punana Leo i mua o ka aha olelo e hoike ai i ka waiwai o ka olelo Kanaka. He mau makahiki o ka hele ana i mua o lakou i loaa mai ai ka apono e hoano hou ia na kula olelo Kanaka a me ke ao pu ana ma na kula aupuni kekahi. O ka makou hana hoi o ka imi ana i kahi e malama ia ai keia kula kamalii a me na haawina e ao ai. Ua pomaikai maoli no keia hookumu ana i kekahi kula olelo Kanaka i na makua i kupaa i loko o ke ao ana mai i ka lakou mau keiki ma ka olelo Kanaka wale no. Ke ole ko lakou hoihoi a me ka iini i ka olelo Kanaka, aole no paha i holopono ia noi. Aia no ka pono o ke kula olelo Kanaka i ka loaa o na keiki e ao ai?

/t~k/ allophony in Niihau (Blust 2004)

The first careful phonetic transcriptions of Ni'ihau speech evidently were those of Newbrand (1951), who worked with a 19-year-old speaker in 1950. Newbrand (1951:106) described the Ni'ihau dialect as having "two outstanding characteristics," of which one was "the [t] allophone of the /k/ phoneme. Whether this is in free variation has not been determined; there may be a pattern in its use." If there is a pattern of *t/k* variation in the data Newbrand collected, it is not evident, because sequences of both *k*V*k* and *t*V*t* appear in her transcriptions of different forms, as with [ke kula] 'school' and [tetʌhi] 'a, one' (116), and identical phrases are transcribed with apparently free variation, as in *ke aloha o ke Akua* 'the love of the Lord' recorded first with *ke aloha* (125) and subsequently with *te aloha* (126). More recent observations of the Ni'ihau dialect, however, reveal a pattern that is not apparent in Newbrand's data. In general, PPN *t remained *t*, but in the sequence *tVt the first stop dissimilated to *k*, as in pre-Hawaiian *te tahi > Standard Hawaiian *kekahi* : Ni'ihau Hawaiian *ketahi* 'one', pre-Hawaiian *tatou > SH *kakou*, NH *katou* 'IPL INCL', or pre-Hawaiian *matahiti > SH *makahiki*, NH *makahiti* 'year' (Emily Hawkins, pers. comm.). The psychological reality of this pattern of dental stop dissimilation is particularly clear in the treatment of loanwords such as SH *kuke*, NH *kute* 'cook', because the borrowed form never had a *t*, and presumably acquired one only to avoid the impermissible pattern *k*V*k*. According to Emily Hawkins, some instances of *k* also occur in Ni'ihau speech in nondissimilatory contexts, presumably as a result of contact with the standard language.

- Recognizes trend toward kVt
- Recognizes optionality of dissimilation
- Historical development from Proto-Polynesian *t
- *t > k occurs in many Austronesian languages

/t~k/ allophony in Niihau (Wong 2019)

- Native speaker (non-linguist) intuitions
- If we assume that /t/ is underlying form (as */t/ is the proto-form), then /t/ > [k] driven by avoidance of having two [t] sounds in a row and/or within the same foot/PWd

Papa Kuhikuhi Helu 3.1 Na Hua Olelo i Hoohana ia me ke *K* a i *T*

Ka Puana Niihau	*Ka Puana Maamau*
tataahi	kākaʻahi
tataitahi	kākaʻikahi
tala	kālā
teteehi	kekeehi
kapati, sabati	kapaki
kataiaka	kakahiaka
katou	kākou
kikiti	kikiki
koto	koko
tokoleka	kokoleka
tootoo	koʻokoʻo
tutatuta	kūkākūkā

Niʻihau

Standard

/t~k/ allophony in Niihau (Wong 2019)

- More general avoidance of multiple alveolars in a word
- /t/ > [k] in the presence of /n/

Papa Kuhikuhi Helu 3.3 Na Hua Olelo i Pela ia me ka "*N*" i hiki ole ke hoololi ia ke *K* i *T*

Ka Puana Niihau		*Ka Puana Maamau*	
iniki	**Niʻihau**	ʻiniki	**Standard**
inikiniki		ʻinikiniki	
inika		ʻīnika	
nakii		nākiʻi	
naku		naku	
nakunaku		nakunaku	
nakulu		nakulu	
noke		noke	
nuku		nuku	
nukee		nūkeʻe	

/t~k/ allophony in Niihau (Wong 2019)

- More general avoidance of multiple alveolars in a word
- /t/ > [k] in the presence of /l/

Papa Kuhikuhi Helu 3.4 Na Hua Olelo i Pela ia me ka "*L*" i hiki ole ke hoololi ia ke *K* i *T*

Ka Puana Niihau	*Ka Puana Maamau*
laka	laka
laiki	laiki
laki	laki
lako	lako
leka	leka
like	like
likelike	likelike
loke	loke
luku	luku

Ni'ihau **Standard**

/t~k/ allophony in Niihau (Wong 2019)

- More general avoidance of multiple alveolars in a word
- /t/ > [k] in the presence of /n/ or /l/

Papa Kuhikuhi 3.2 Na Hua Olelo i Hiki ole ke Hoololi ia ke *K* i *T*

Ka Puana Niihau	*Ka Puana Maamau*
kanake **Niʻihau**	kanakē **Standard**
kanaka	kānaka
kalaka	kalaka
kaliki waiu	kāliki waiū
kakani	kakani
kakini	kākini
laikini	laikini
lokeloke	lokeloke
kolekole	kolekole
pakalaki	pakalaki
pukalaki	pūkalakī

/t~k/ allophony in Niihau (Wong 2019)

- Some phonemic pairs emerging to differentiate what were previously homophones and near-homophones

Papa Kuhikuhi Helu 3.7 Na Hua Olelo Papalua me na Manao Okoa

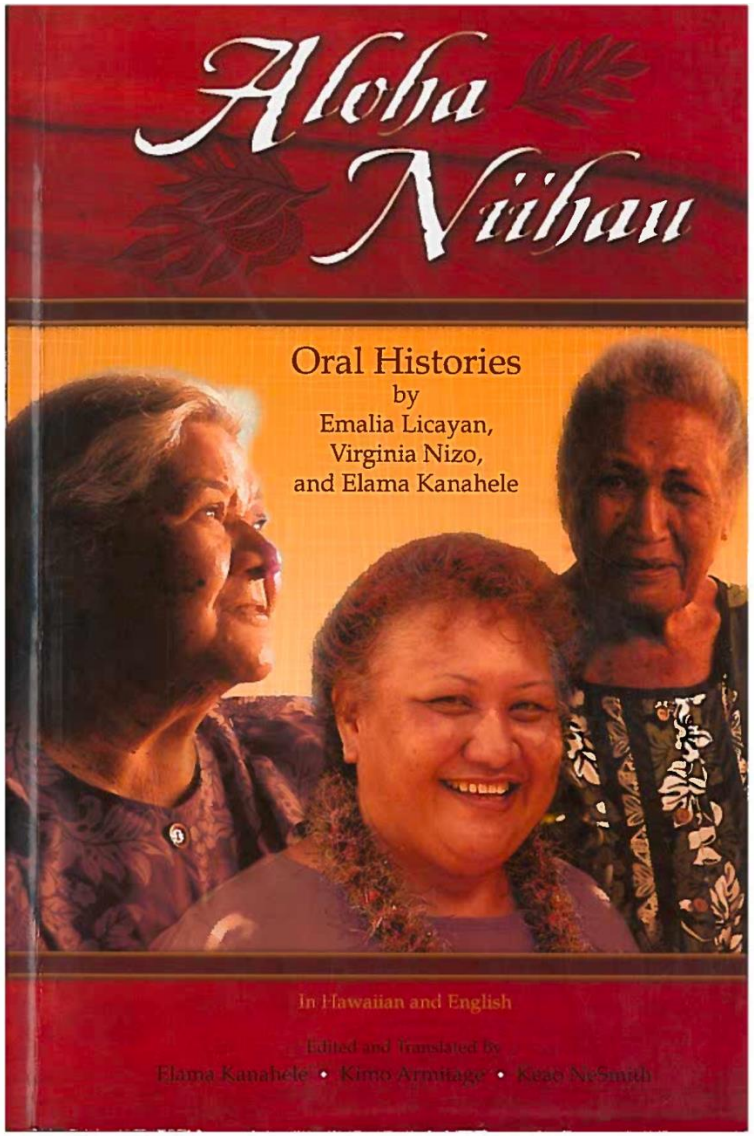
Ka Puana Niihau	*Ka Puana Maamau*
kula	kula
tula	kula
kali	kali
tali	kali
kena	kena
tena	kēnā
tela	kēlā

Ni‘ihau

Standard

Present data source: *Aloha Niihau*

- Close word-for-word transcriptions of recorded interviews of three elder Niihau women
- Majority of text from Elama Kanahele's interview, so focusing just on her
- <t> and <k> distinguished in orthography, but otherwise typical Niihau orthography



Present data source: *Aloha Niihau*

“On *Aloha Niihau*, we wanted to demonstrate 2 of the most unique features of olelo Niihau, that being 1) the /k/ and /t/ shifts (and by extension, how the shifts are dependent on peripheral factors: i.e. the word before and after and the word choice), and 2) how Niihau, like other native speakers, do not use okina-kahako in orthography.”

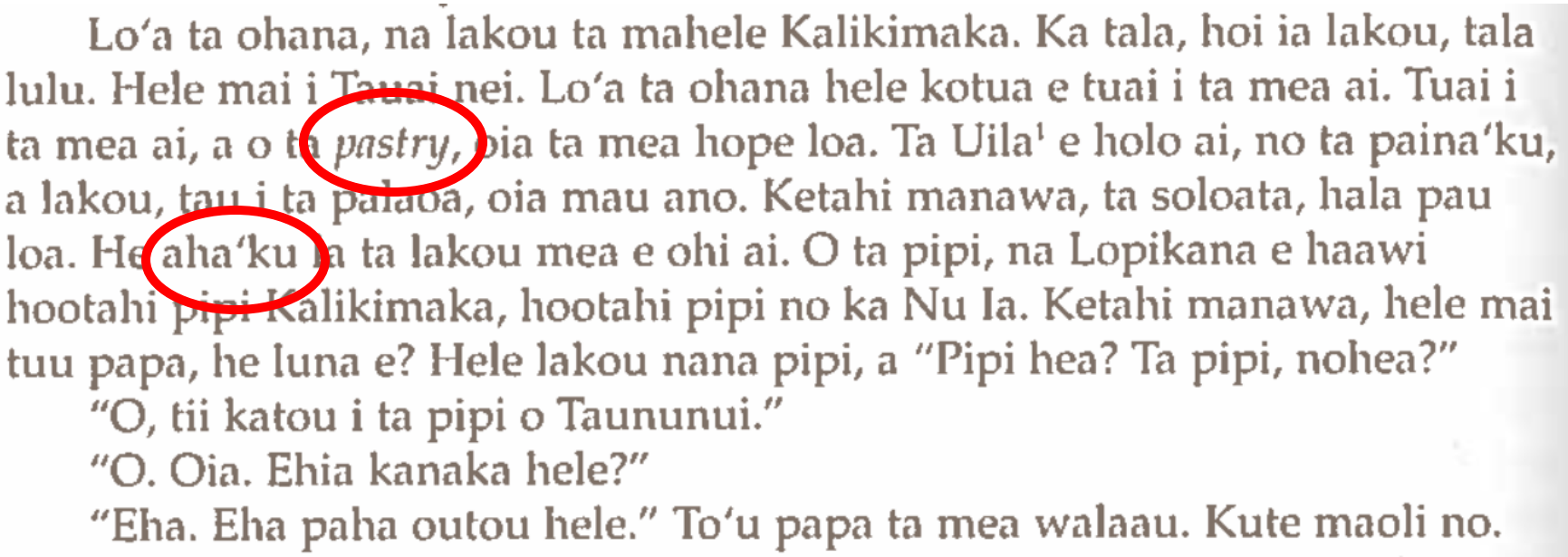
I transcribed the audio recordings of interviews conducted and made accommodations with regards to stops and starts, stuttering, etc. as you describe (‘streamlining’). I still have the audio recordings.”

(Keao NeSmith, personal comm. 4 April 2025)

Bonus: “Although it is true that for lengthy or formal discourse, k & t are not written consistently by Niihau (sometimes though, inconsistently), it is also true that for informal communication, especially in texting on the phone or for writing notes to each other, it is normal.”

Present data source: *Aloha Niihau*

- What I did:
  - ‘Corrected’ a couple contractions for ease of searching certain lexemes for t vs. k
  - Stripped punctuation
  - Removed words with non-native phonotactics
- 2,991 <t>
- 1,354 <k>



Lo‘a ta ohana, na lakou ta mahele Kalikimaka. Ka tala, hoi ia lakou, tala lulu. Hele mai i Tauai nei. Lo‘a ta ohana hele kotua e tuai i ta mea ai. Tuai i ta mea ai, a o ta *pastry*, oia ta mea hope loa. Ta Uila[1] e holo ai, no ta paina‘ku, a lakou, tau i ta palaoa, oia mau ano. Ketahi manawa, ta soloata, hala pau loa. He aha‘ku ia ta lakou mea e ohi ai. O ta pipi, na Lopikana e haawi hootahi pipi Kalikimaka, hootahi pipi no ka Nu Ia. Ketahi manawa, hele mai tuu papa, he luna e? Hele lakou nana pipi, a “Pipi hea? Ta pipi, nohea?”

“O, tii katou i ta pipi o Taununui.”

“O. Oia. Ehia kanaka hele?”

“Eha. Eha paha outou hele.” To‘u papa ta mea walaau. Kute maoli no.

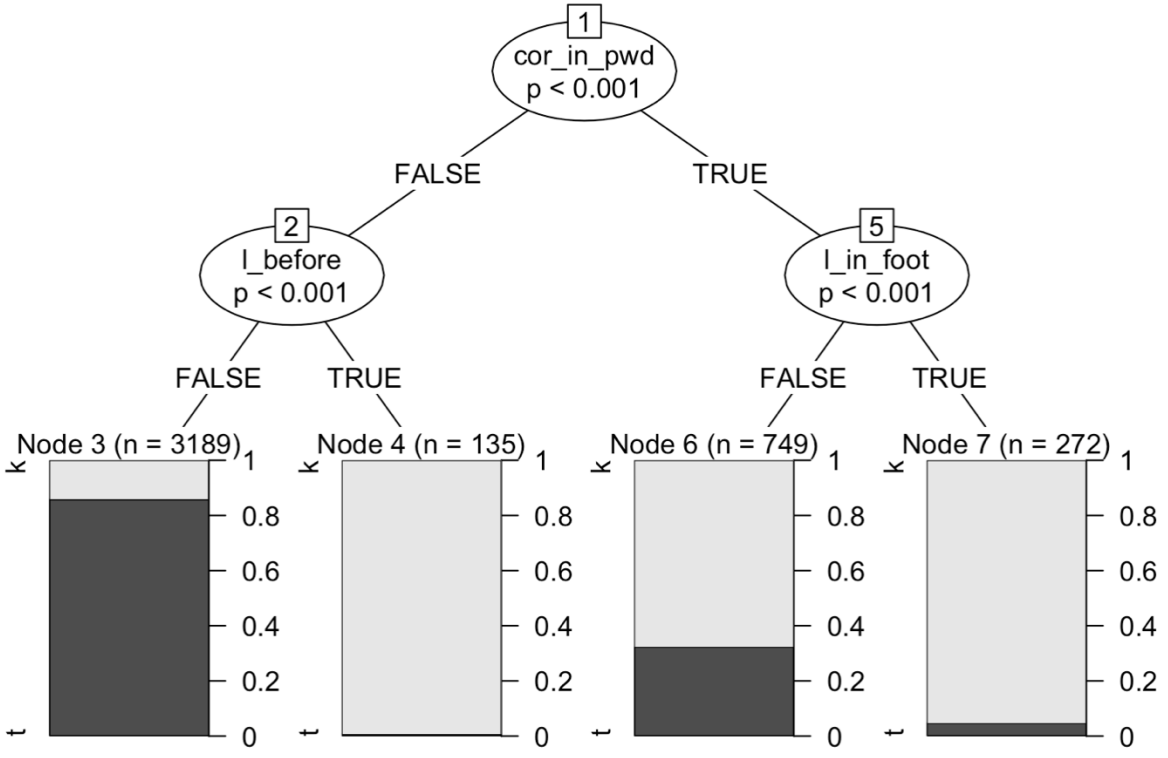
Conditional Inference Tree

- “Provides estimates of the likelihood of the value of the response variable based on a series of binary questions about the values of predictor variables” (Tagliamonte & Baayen 2012)
- Each t or k token coded for 35 variables:

- Previous vowel
- Following vowel
- Previous consonant
- Following consonant
- Another t/k in word?
- Another t/k before within word?
- Another t/k after within word?
- A(nother) t in word?
- A(nother) t before within word?
- A(nother) t after within word?
- A(nother) k in word?
- A(nother) k before within word?
- A(nother) k after within word?
- An n in word?
- An n before within word?
- An n after within word?
- An l in word?
- An l before within word?
- An l after within word?
- An l/n in word?
- An l/n before within word?
- An l/n after within word?
- A(nother) t/l/n within word?
- A(nother) t/l/n before within word?
- A(nother) t/l/n after within word?
- A(nother) t within foot?
- A(nother) t within PWd?
- An n within foot?
- An n within PWd?
- An l within foot?
- An l within PWd?
- An n/l within foot?
- An n/l within PWd?
- A(nother) t/l/n within foot?
- A(nother) t/l/n within PWd?

Conditional Inference Tree

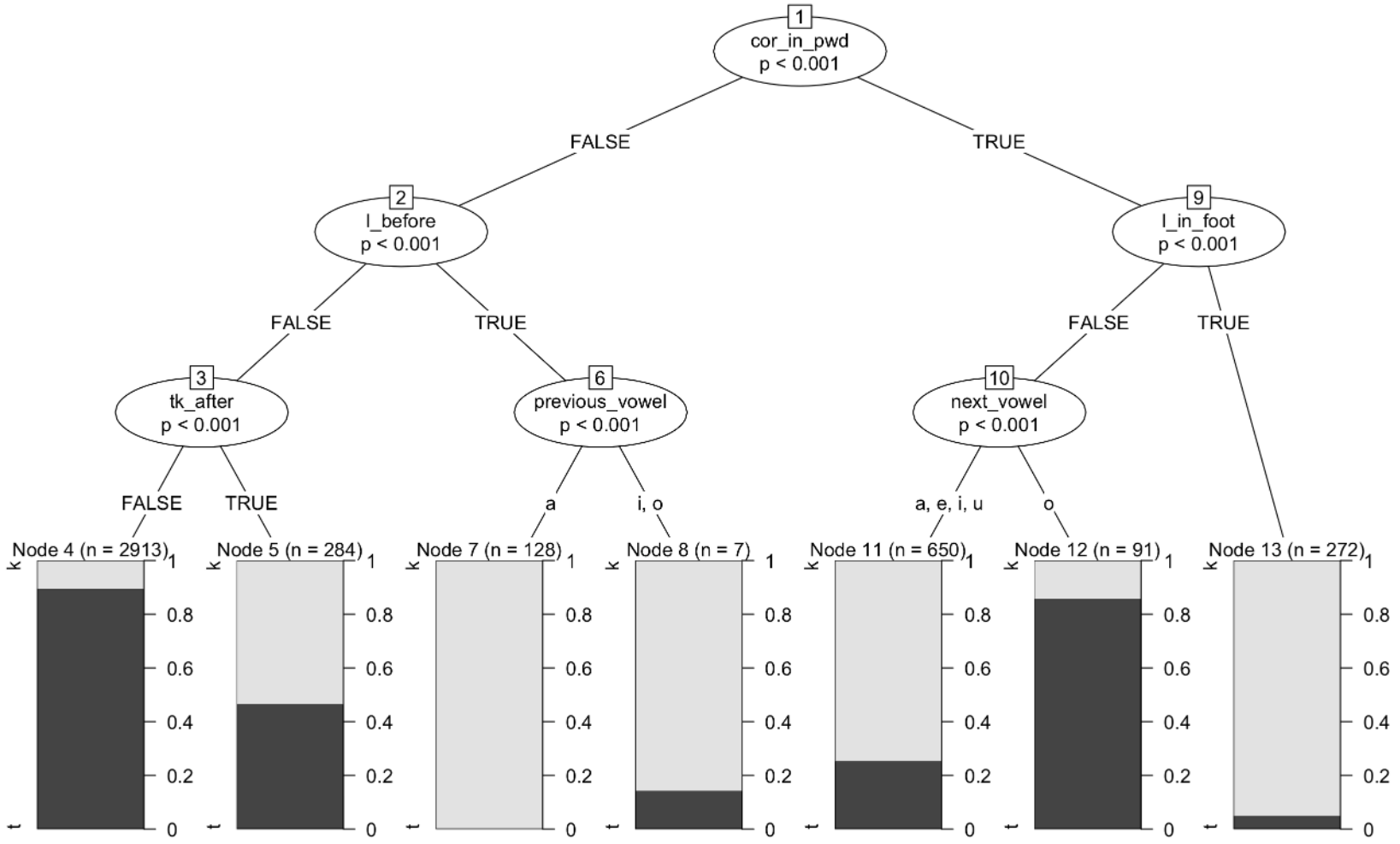
- Most informative split: presence of a(nother) [t] or an [l] or an [n] within the PWd domain
  - If not, next split is whether there's an [l] before it within the word
    - If not, 85.8% likely to be [t] (Node 3)
    - If so, 99.3% likely to be [k] (Node 4)
  - If so, next split is whether there's an [l] anywhere within the foot
    - If not, 67.7% likely to be [k] (Node 6)
    - If so, 95.2% likely to be [k] (Node 7)



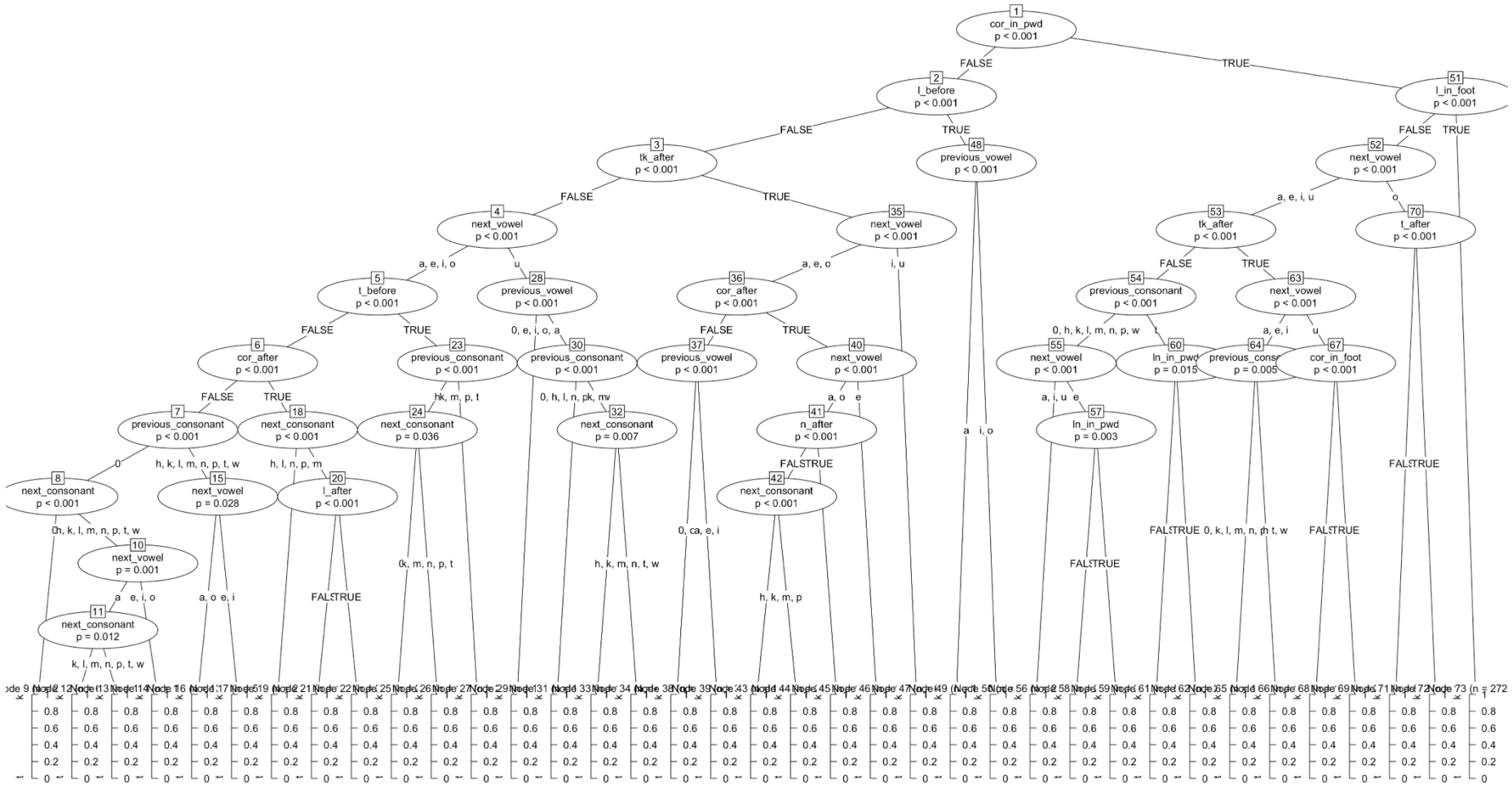
Maximum number of splits set to 2

Conditional Inference Tree

- Beyond 2 splits, vowel effects likely lexical or higher-domain stuff?
  - Maybe the tk_after could be useful to consider?
- Let's stick with the 2 split tree for now

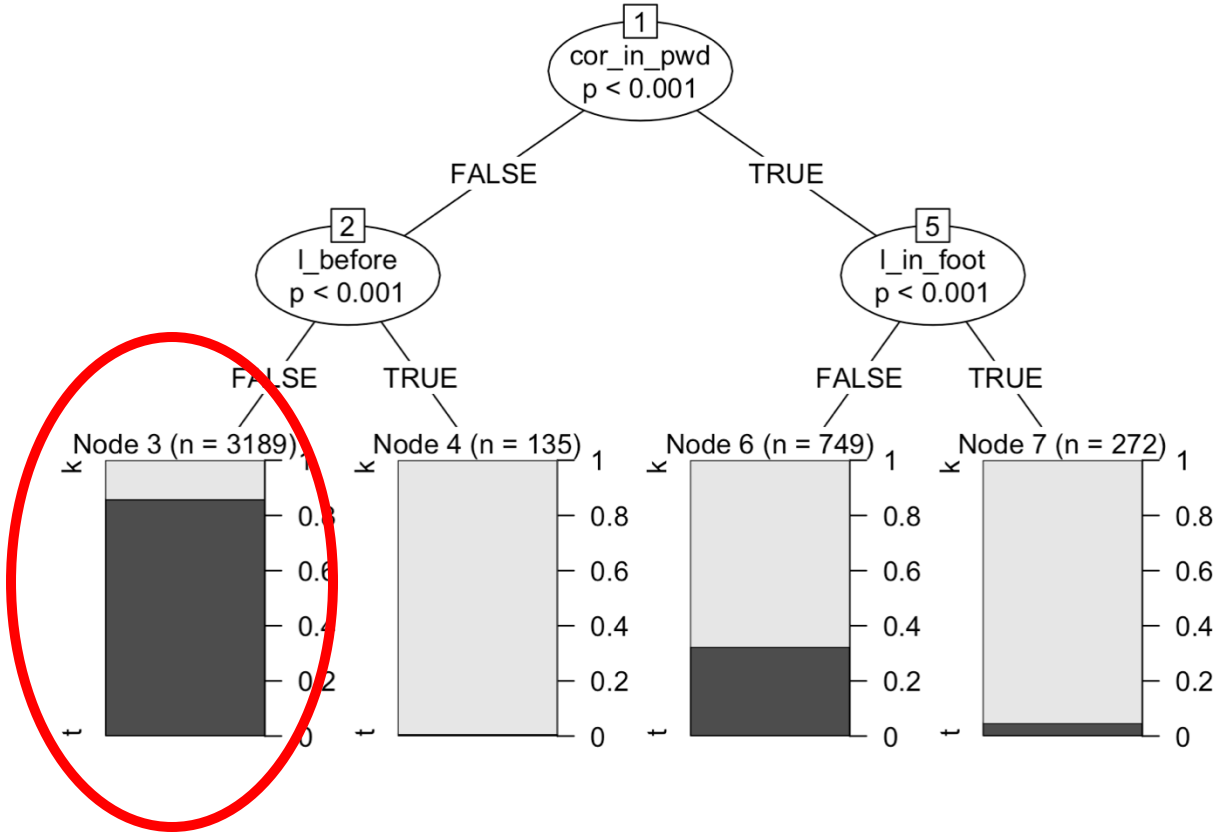


Conditional Inference Tree



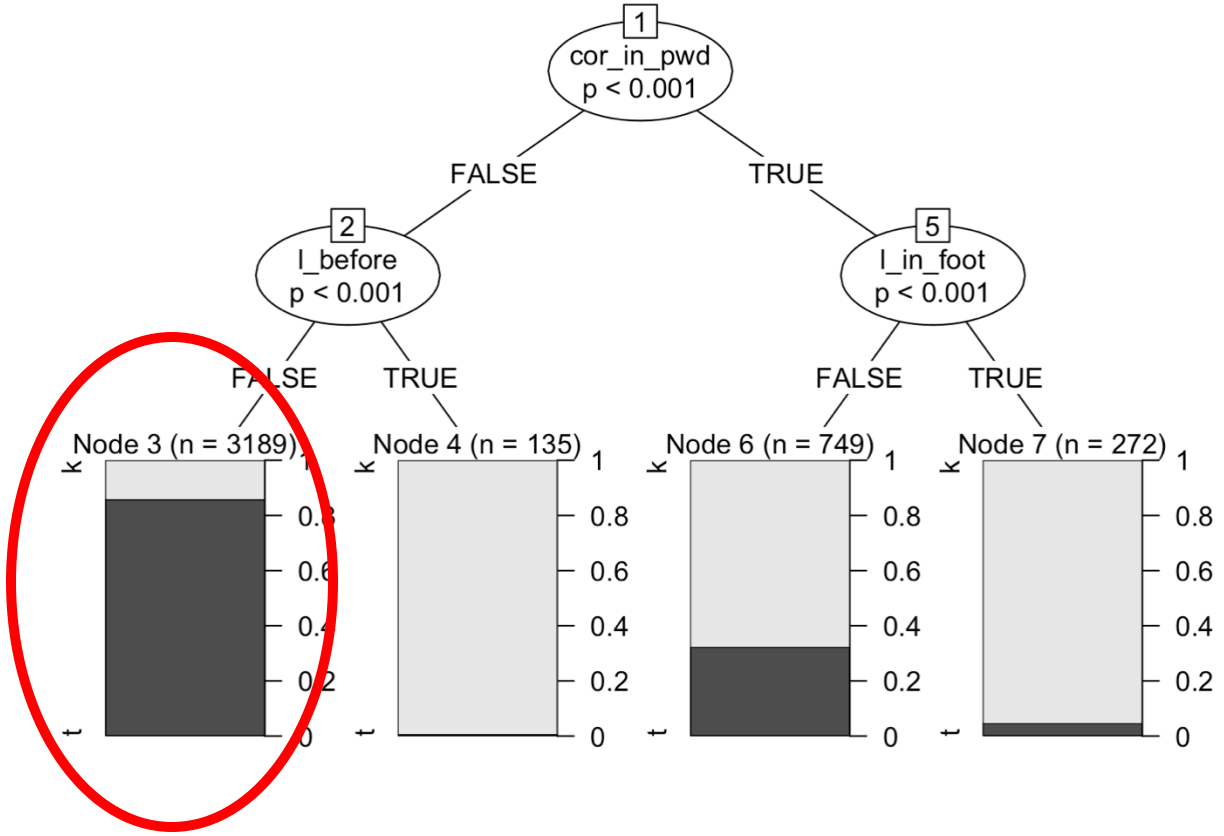
Conditional Inference Tree – Node 3

- <{ˈ**t**ou}> or <{ˈ**t**o.ʔu}>
- <{ˈa.**k**a}> or <a.{ˈ**k**aː}>
- <{ˈha.**t**u}>
- <{ˌ**t**eː}><{ˈlaː}>
- <{ˌ**k**aː}><{ˈ**t**ou}>



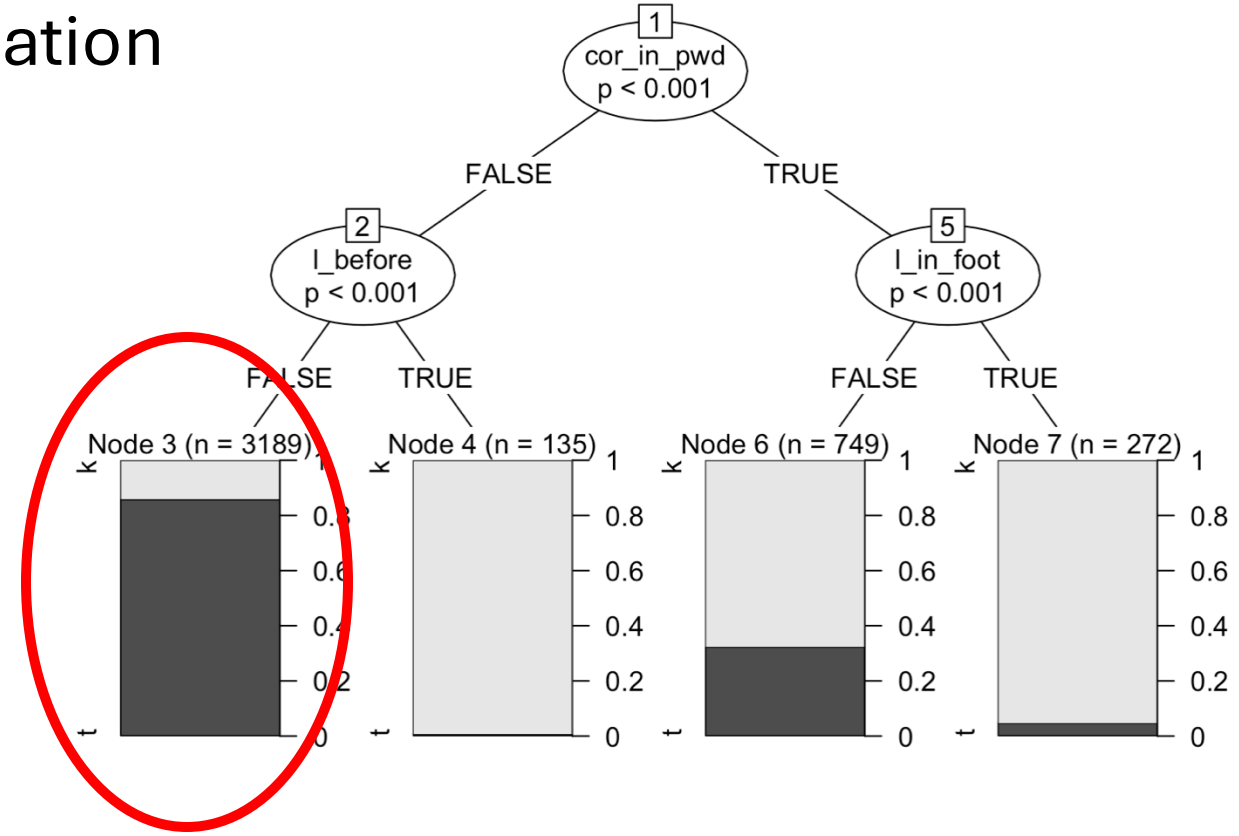
Conditional Inference Tree – Node 3

- Some words always /k/
  - akā (*but*): 13 /k/
  - aku (directional particle): 100 /k/
  - kamaliʻi (*child*): 37 /k/
  - akamai (*smart*): 4 /k/
- Some words always /t/
  - tēia (*this*): 128 /t/
  - tou (*your*) toʻu (*my*): 84 /t/
  - hiti (*can*): 80 /t/
  - mātou (*we* excl. 3+): 59 /t/
  - tau (*put*) tāu (*your*) taʻu (*my*): 42 /t/



Conditional Inference Tree – Node 3

- Some words always same alternation
  - tahakai (*beach*): 25
  - makahiti (*year*): 22
  - pākautau (*table*): 15
  - kōtua (*help*): 11
  - koko**t**e (*near*): 8
  - hoʻomākautau (get ready): 6
  - mākautau (ready): 5
  - kapati (*sabbath*): 2

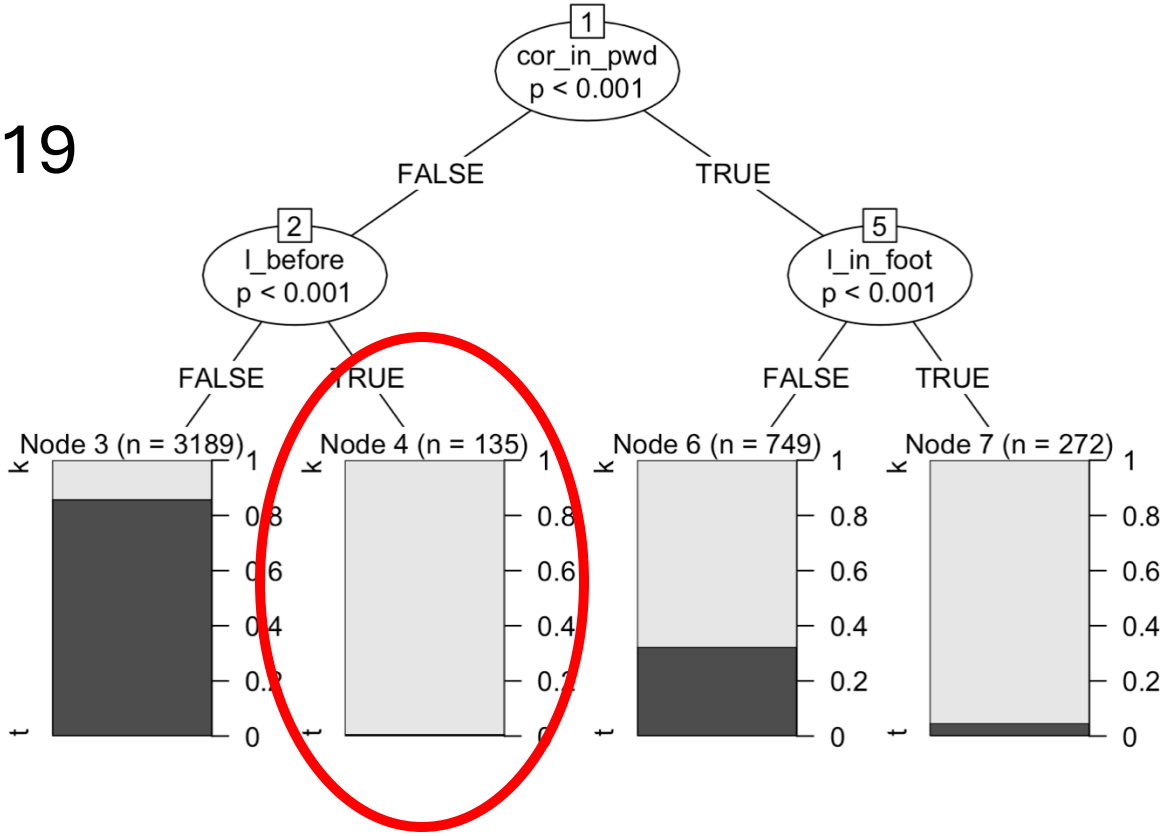


Conditional Inference Tree – Node 4

- <{ˌlaː}><{ˈ**k**ou}> *they* (3+): 107
- <ka.{ˌli.ki}><{ˈma.**k**a}> *Christmas*: 19
- <{ˌpi.li}><{ˈ**k**i.a}> *problem*: 6
- <{ˌa.la}><{ˈ**k**a.ʔi}> *leader*: 2

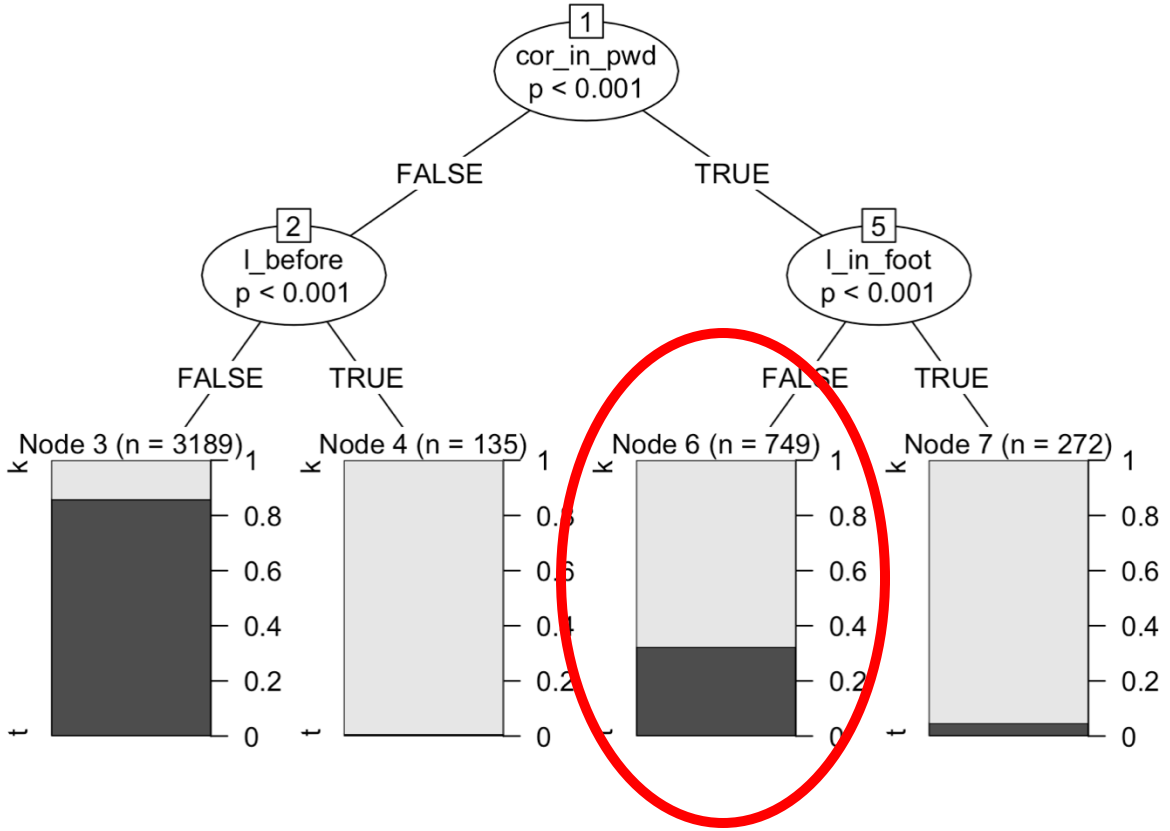
only example of [t]:

- <{ˌho.lo}><ʔo.{ˈ**t**o.ʔa}> *whole*: 1



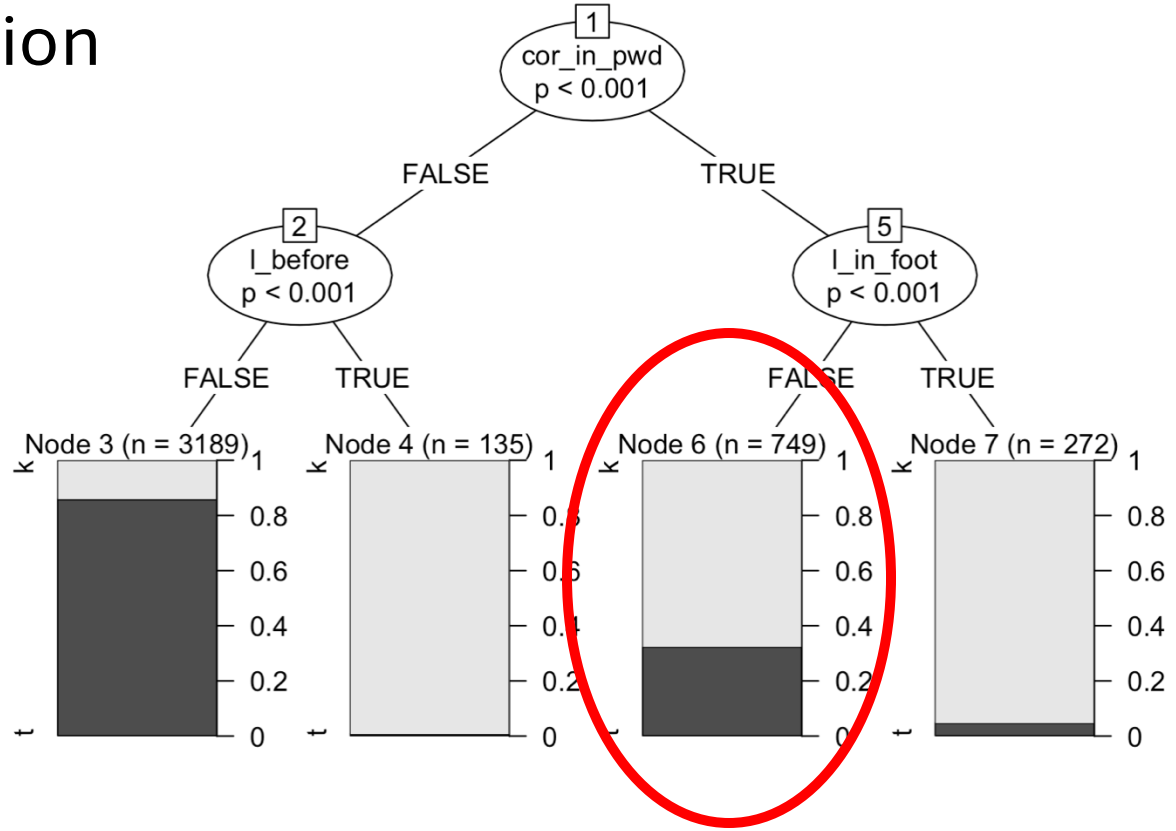
Conditional Inference Tree – Node 6

- Some words always /k/
  - <**k**a.{ˌli.ki}><{ˈma.ka}>: 19
  - mikini (*machine*): 13
  - **k**ana**k**a (*person*): 10
  - **k**alaka (*truck*): 12
  - kuene (*supervise*): 12
  - kani (*noise*): 6
  - kanikani (*chattering*): 4
- Some words always /t/
  - (ta/te) tuʻituʻi: 5
  - (te) tāhea: 7 <te.{ˌ**t**aː}><{ˈhe.a}>
    - cor_in_pwd TRUE because of preceding article



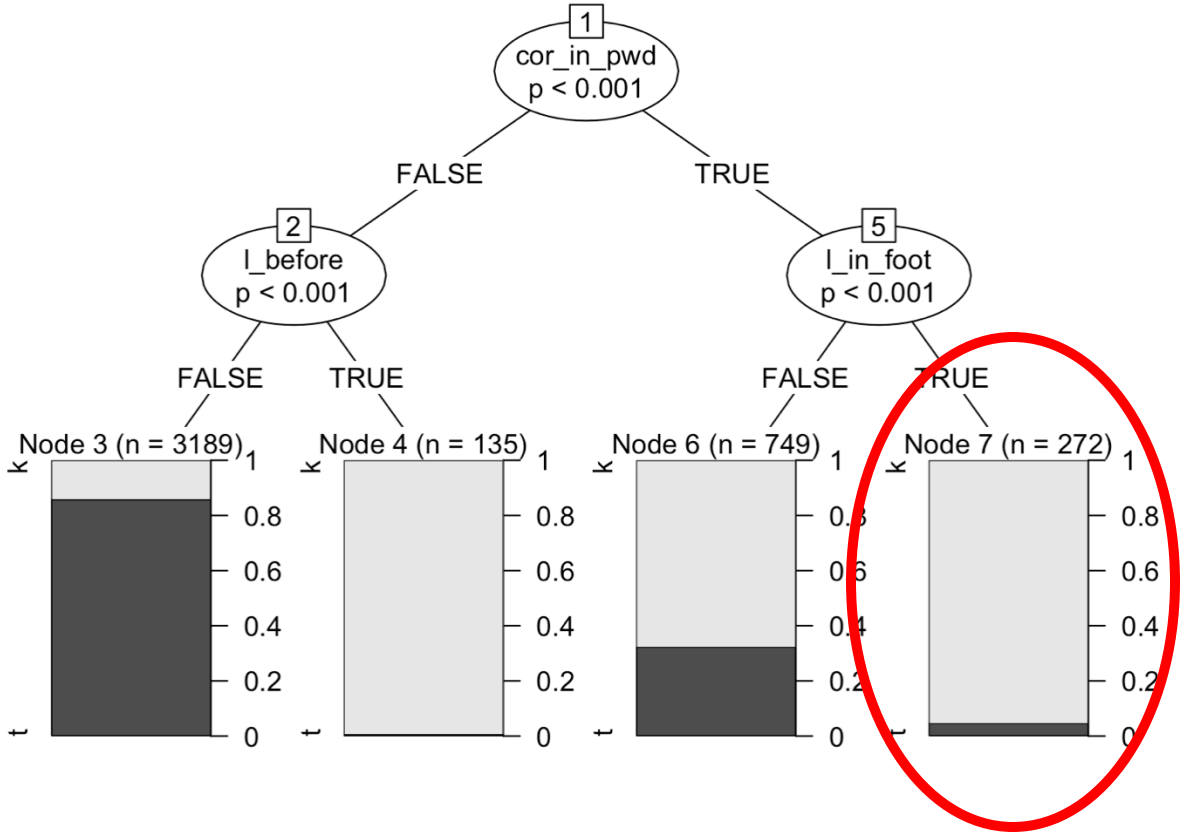
Conditional Inference Tree – Node 6

- Some words always same alternation
  - **k**ute (*cook*): 24
  - pā**k**ete (*bucket*): 10
  - **k**auta (*doctor*): 4



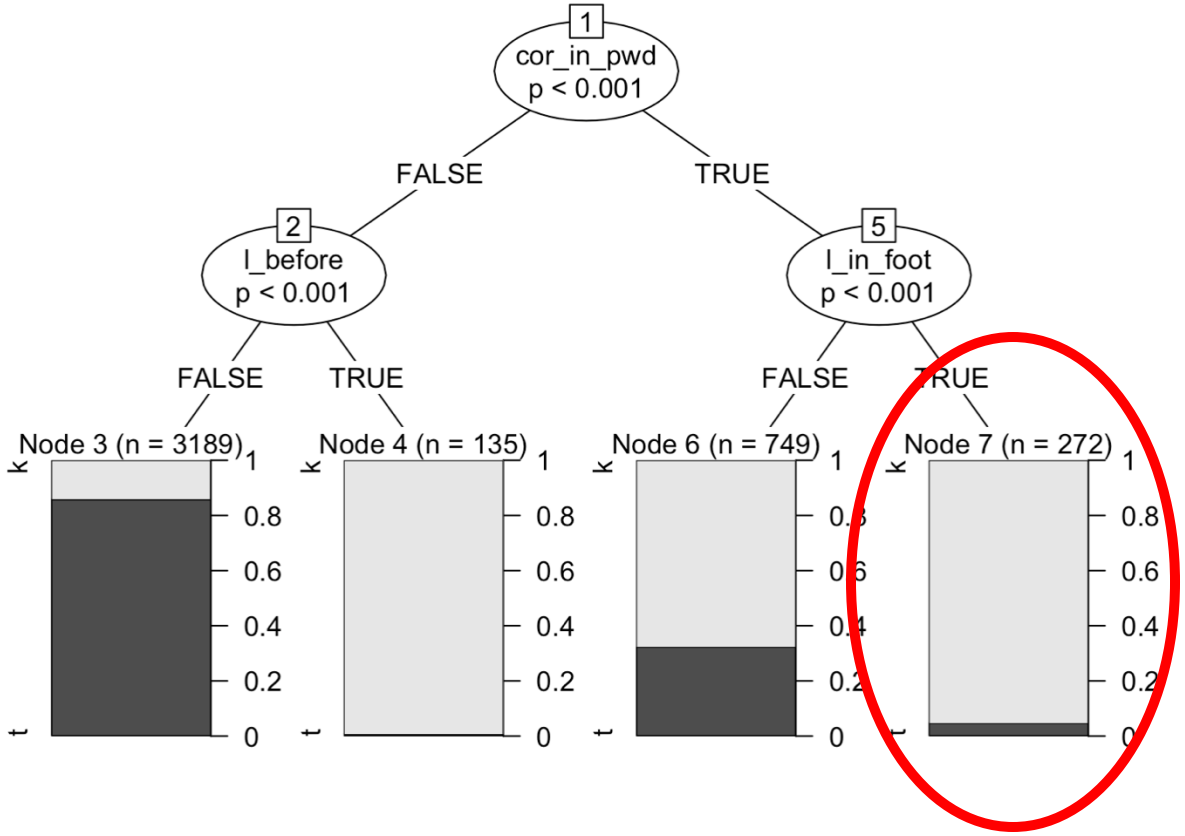
Conditional Inference Tree – Node 7

- <ka.{ˈla.**k**a}>
- <{ˈ**k**u.la}>
- <{ˈli.**k**e}>
- <ka.{ˌli.**k**i}><{ˈma.ka}>



Conditional Inference Tree – Node 7

- Most words always /k/
  - like (*like*): 61
  - iloko (*inside*): 45
  - akula (directional particle): 38
  - ʻekolu (*three*): 6
  - kali (*wait*): 3
- Some always /t/
  - taula (*rope*): 7
  - tū**t**ulu (*build*): 3



Plot twist:
Some words have more than one form!

<{ˈka.pu}> *taboo, holy* or *cap* or *tub*

- kapu: 1 (all cap)
  - **lei a'i me ta papale kapu** – put on a cap
- tapu: 11 (all tub)
  - **a tau ka tapu inuna o ka tapuahi** – and put the tub on the hearth

- Good example of English origin affecting the choice of t/k

<{ˈko.pe}> *coffee*

- kope: 5
  - all instances of collocative verb **inu kope** – *drink coffee*
- tope: 5
  - **he tope** (2) – *a coffee*
  - **ka tope** – *the coffee*
  - **pakautau tope** (2) – *coffee table*

- Seems like collocation/verb different from noun? Maybe because of /n/ in **inu**?

te.<a.{ˈku.a}> *God*

- Te Akua: 24
  - **mahalo i te Akua no na mea a pau** – *thanks to God for everything*
- Ke Atua: 1
  - **mahalo i te aloha o ke Atua i ke tiai** – *thanks to the love of God for guarding*
  - t-form selected because preceding/following consonants are <k>?
- Ke Akua: 1
  - **Himeni ia “Na Ke Akua Mai”** –*“From God” was sung*
  - Title of song, so <k> forms used?

<{ˈkaː.ne}> *man*

- kane: 3
  - **keiti kane** (2) *son*
  - **kupuna kane** (1) *grandfather*
- tane: 13
  - **kamalii tane** (2) *son*
  - **makua tane** (4) *father*
  - **ta’u tane ipo** (4) *my husband*
  - **tupuna tane** (2) *grandfather*

<ka.{ˌka.hi}><{ˈa.ka}> *morning*

- takahiata: 2
  - **A ohana takahiata**
  - **Ala mai i takahiata a ohana mamua o ta hele ana i ta hana**
- takahiaka: 7
  - **hele mai katou a takahiaka**
  - **Makautau i takahiaka**
  - **ohana takahiaka**

<{ˈka.hi}> (various)

- tahi: 7
  - 5 of these = contraction of “ka wahi” *the place*
  - 2 of these = *one/one/a/an/some*
- kahi: 33
  - most of these = *one/one/a/an/some*
  - **kokote i tahakai ma kahi o Teapopolo ma** – close to the shore at the place of Teapopolo

<{ˌka:}><{ˈkau}> *write*

- katau: 1
  - **Ahe i katau ia iloko o ta pute** – nothing was written in the book
- takau: 1
  - **Ahe i takau ia mai la iloko o ta nupepa** – nothing was written in the newspaper

<{koe}> *remaining*

- koe 1, toe 1

<{ˌka:}><{ˈle.na}> *talent*

- talena: 1
  - **No to lakou talena** – *as for their talent*
- kalena: 1
  - **A o tela mau kalena** – *and those talents*

<{ˈko.na}> *his, hers, its*

- kona: 1
  - **kona lumi** – *her room*
- tona: 33
  - **tona leo** – *his voice*
  - **tona lima** – *their hand*

<{ˈma.ke}> *die*

- make: 1
  - **poloke kahi mea taa a o ka make ana'ku la no** – *some part of the car got broken or died*
- mate: 10

<{ˌho.ʔo}><{ˈka.hi}> *one*

- hootahi: 43
  - **a tau iluna o hootahi taa** – *and placed on top of one car*
- hookahi: 1
  - **…i ta mea ai a hookahi pakautau** – *…the food and one table*

<{ˌka.ha}><{ˈwai}> *stream*

- tahawai: 3
- kahawai: 1

A he tahawai no. No kahawai. Wai tahawai. Tela wai tahawai mea holoi pa, holoi hale.

And it's indeed a stream. From a stream. Stream water. That stream water is used for cleaning dishes, cleaning the house.

<{ˌka.la}> or <{ˌkaː}><ˈlaː}>

- tala: 5
  - tālā (<Eng. dollar – *money*): 2
  - e tala (extremely polysemous): 3
- kala: 1
  - **Hootaawale i ka lole teoteo, ka lole lepo ino, ka lole kala nohoi, ke tawele, ta uhi pela** – *she separates the white clothes, the really dirty clothes, also the (kālā: expensive? kala: coloured?) clothes, the towels, the bed coverings*
  - Footing ambiguous as written, need to listen to original

<{ˌkuː}><{ˈpu.na}> *grandparent*

- kupuna: 1
  - **He kupuna kane Tepani to’u** – *I have a Japanese grandfather*
- tupuna: 11
  - **tupuna tane** (2) *grandfather*
  - **tupuna wahine** (4) *grandmother*
  - **tupuna** (5) (unmodified)

Difficult monosyllabic words

- Definite article – probably needs to be analyzed separately with close eye to metrical structure within phrase + surrounding consonants
  - ta: 832
  - te: 239
  - ka: 189
  - ke: 22
  - Some variation in article selection even for the same lexeme
    - ka tuitui (2), ta tuitui (4), te tuitui (1)
- to/tō/ko/kō
  - Extreme polysemy – needs to be disentangled further

Difficult multisyllabic words

- Indefinite article
  - kekahi: 5
    - kekahi wahi (*some place*): 1
    - kekahi manawa (*some time*): 1
  - ketahi: 59
    - kekahi wahi (*some place*): 3
    - ketahi manawa (*some time*): 8
  - Difficult to figure out pattern, probably complex interaction with surrounding environment?
    - Though in many of the above examples, both t/k options were phrase/sentence-initial… so some degree of arbitrariness?

Difficult multisyllabic words

- kela/kēlā *that* (distal)
  - Theoretically, if foot/PWd boundary blocks dissimilation, *tēlā* and *kela* should be preferred
  - kela: 8
    - **kela olelo** (2) – *that language*
    - **kela ano** – that kind
    - **kela manu** (2) – that bird
    - **kela** (single-word phrase sentence-initially)
  - tela: 234
    - Most followed by phrase boundary!
    - But also get 31 **tela ano**, many other tela + noun

10. (a) keːlaː → kela / ___ NOUN
    (b) keːnaː → kena / ___ NOUN
    (c) keːia → keia / ___ NOUN

Further issues

- Potential for same word to be coded differently based on preceding article te/ta/ke/ka
  - Coded as T for cor_in_pwd if preceded by **te** (the)

    <te.{ˌ**k**a.ma}><{ˈli.ʔi}> (*the child*)

    <te.{ˈ**k**ei.ti}> (*the kid*)
  - Coded as F for cor_in_pwd if not

    <{ˌ**k**a.ma}><{ˈli.ʔi}> (*child*)

    <{ˈ**k**ei.ti}> (*kid*)

Summary

- /t/ seems to be underlying form in Olelo Niihau
- /t/ > [k] triggered by avoidance of multiple coronals in a row
- In tVt sequences, preference for kVt (but not in all cases!)
- Dissimilation partially blocked by PWd and/or foot boundaries?
- Some evidence of lexical specification
  - Some emergence of marginal minimal pairs
- Lots of evidence of effects beyond the word level
  - Within-word variation not due to phonological environment
  - Definitely a stylistic aspect, but this data isn't set up to investigate that
- Provides phonological "missing link" that could help account for historical examples of "unconditioned" *t > k

Next steps

- How does this fit in with phonological theories regarding dissimilation or consonant disharmony?
  - Is this sort of coronal dissimilation common crosslinguistically? Please send relevant lit my way!
- What sort of phonological framework can account for this kind of variation and optionality?
  - Some sort of fancy OT?
  - If this is your thing, let me know!
- Plenty of phonetic data from this speaker and others, can expand dataset to test phonological theories and stylistic variation

Mahalo i to outou hoolohe ana mai!