

Consider the data below from four Polynesian languages. Figure out the sound correspondences for the consonants, and reconstruct the Proto-Polynesian forms. Do the sound changes need to be ordered?

Treat Maori *wh* as a voiceless bilabial fricative (IPA ϕ)

	<u>Hawaiian</u>	<u>Maori</u>	<u>Tongan</u>	<u>Samoan</u>		<u>Proto-Polynesian</u>
1.	ʔele	kere	kele	ʔele	‘black’	kele
2.	ʔula	kura	kula	ʔula	‘red’	kula
3.	hale	whare	fale	fale	‘house’	fale
4.	heʔe	wheke	feke	feʔe	‘octopus’	feke
5.	kalo	taro	talo	talo	‘taro’	talo
6.	kahu	tahu	tafu	tafu	‘cook’	tafu
7.	kai	tai	tahi	tai	‘sea’	tahi
8.	haʔa	haka	haka	saʔa	‘dance’	saka
9.	liʔi	riki	iki	liʔi	‘small’	riki
10.	luʔu	ruku	uku		‘dive’	ruku
11.	lama	rama	ama	lama	‘torch’	rama
12.	puna	puŋa	puŋa	puŋa	‘coral’	puŋa
13.	piko	pito	pito	pito	‘navel’	pito
14.	nuku	ŋutu	ŋutu	ŋutu	‘beak’	ŋutu
15.	nalu	ŋaru	ŋalu	ŋalu	‘wave’	ŋalu
16.	niho	niho	nifo	nifo	‘tooth’	nifo
17.	moko	moto	moto	moto	‘strike with fist’	moto
18.	moe	moe	mohe	moe	‘sleep’	mohe
19.		aŋa	haŋa	aŋa	‘to face’	haŋa
20.	iho	iho	hifo	ifo	‘downwards’	hifo
21.	aʔe	ake	hake	aʔe	‘upwards’	hake
22.	ihi	ihi	hihi	isi	‘to strip, peel’	hisi
23.	aka	ata	ata	ata	‘dawn’	ata
24.	awa	awa	ava	ava	‘channel’	awa
25.	pee	pee	peʔe	pee	‘overripe’	peʔe
26.	ao	ao	ʔaho	ao	‘day’	ʔaho
27.	au	au	ʔahu	au	‘gall’	ʔahu
28.	aloha	aroha	ʔaloʔofa	alofa	‘love, pity’	ʔaloʔofa
29.	wai	wai	vai	vai	‘water’	wai
30.	waʔa	waka	vaka	vaʔa	‘canoe’	waka
31.	wae	wae	vaʔe	vae	‘leg’	waʔe
32.	hau	hau	hau	sau	‘dew’	sau

33.	hiʔu	hiku	hiku	siʔu	‘tail’	siku
34.	iwa	iwa	hiva	iva	‘nine’	hiwa
35.	ihu	ihu	ihu	isu	‘nose’	isu
36.	noho	noho	nofo	nofo	‘sit, dwell’	nofo
37.	leo	reo	leʔo	leo	‘voice’	leʔo
38.	lele	rere	lele	lele	‘fly, run’	lele
39.	lemo	remo	lemo	lemo	‘drown’	lemo
40.	lehu	rehu	efu	lefu	‘ashes’	refu
41.	mimi	mimi	mimi	mimi	‘urinate’	mimi
42.	mana	maŋa	maŋa	maŋa	‘branch’	maŋa
43.	hala	whara	faa	fala	‘pandanus’	fara
44.	hana	whaŋa	faŋa	faŋa	‘bay’	faŋa
45.	ʔapo	kapo		ʔapo	‘grasp’	kapo

Looking for correspondence sets is mostly pretty straightforward (and we’d done some of this in class). For example, Hawaiian and Samoan /ʔ/ corresponds to Maori and Tongan /k/ (e.g., in words 1, 2, 4, 8, etc.), and we decided to post a proto-Polynesian *k for this, which becomes a glottal stop in Hawaiian and Samoan. Similarly, Hawaiian /k/ corresponds to /t/ in all the other languages.

Some correspondence sets are harder. For instance, Tongan and Samoan /f/ sometimes corresponds to /wh/ in Maori (as in words 3, 4, 43, and 44), and sometimes to /h/ (for example, in words like 6, 16, 20, 36, etc.) We could react to this by positing two proto-phonemes (maybe *f and *wh), which both became /f/ in Tongan and Samoan. But in fact we only seem to get Maori /wh/ at the beginning of a word--which suggests a conditioned sound change, in which Proto-Polynesian *f becomes Maori wh initially and f in other places.

The behavior of the liquids is also disturbing (we haven’t looked at liquids much in class, but they’re /l/ and /r/--we could give /l/ the feature [+lateral] and /r/ the feature [+rhotic], to distinguish them from each other). Often Maori /r/ seems to correspond to /l/ in all the other languages; that’s the pattern you get in words like 1, 2, 3, 5, 37, 38, and so on. But sometimes the expected liquid is missing in Tongan; you see that in 9, 10, 11, 40, and 43. It’s hard to see how you could get the loss of the liquid in Tongan by a phonological rule; often it’s at the beginning of the word in this particular data set, but not always (not in 43, for example). So we seem to be driven to positing two Proto-Polynesian liquids, which I’ve called *l and *r here; both collapse to /r/ in Maori and to /l/ in Hawaiian and Samoan, but Tongan loses *r and keeps *l as /l/.

Further evidence for this solution can be found in the following Fijian words:

kele	‘black’
kula	‘red’
vale	‘house’

dalo 'taro'
lomo 'drown'
ravu 'ashes'
vara 'pandanus'

Here are some rules that get the right results:

Hawaiian rules

[+glottal]-->∅	(ʔ, h-->∅)
[+velar, -continuant]-->[+glottal]	(k-->ʔ)
[+alveolar, -continuant]-->[+velar]	(t-->k)
[+continuant, -sonorant]-->[+glottal]	(s, f-->h)
[+liquid]-->[+lateral]	(r-->l)
[+nasal, +velar]-->[+alveolar]	(ŋ-->n)

Maori rules

[+glottal]-->∅	(ʔ, h-->∅)
[+continuant, -sonorant, +labiodental]-->[+bilabial] /#__	(f-->wh/#__)
[+continuant, -sonorant]-->[+glottal]	(s, f-->h)
[+liquid]-->[+rhotic]	(l-->r)

Tongan rules

[+continuant, -sonorant, +alveolar]-->[+glottal]	(s-->h)
[+liquid, +rhotic]-->∅	(r-->∅)
[+bilabial, +glide]-->[+labiodental, -sonorant]	(w-->v)

Samoan rules

[+glottal]-->∅	(ʔ, h-->∅)
[+velar, -continuant]-->[+glottal]	(k-->ʔ)
[+liquid]-->[+lateral]	(r-->l)
[+bilabial, +glide]-->[+labiodental, -sonorant]	(w-->v)

Some of these rules must indeed be ordered: for example, the Hawaiian 1st, 2nd, and 3rd rules must apply in that order, and the 1st must precede the 4th. In Maori, the 1st and 2nd rules, as written, must precede the 3rd. In Samoan, the 1st rule must precede the 2nd.