Class 11
The Comparative Method (continued)
10/17/19

Midterm next week in-class on Thursday 10/24

1 Wrapping up Polynesian

- We'll wrap up Polynesian by talking about **sound changes** and **sub-grouping**.

- Here's the data again:

(1)

	Tongan	Samoan	Rarotongan	Hawaiian	
1.	tapu	tapu	tapu	kapu	'forbidden'
2.	pito	pute	pito	piko	'navel'
3.	puhi	feula	puʔi	puhi	'blow'
4.	tafaʔaki	tafa	taʔa	kaha	'side'
5.	taʔe	tae	tae	kae	'feces'
6.	taŋata	taŋata	taŋata	kanaka	'man'
7.	tahi	tai	tai	kai	'sea'
8.	malohi	malosi	kaʔa	ʔaha	'strong'
9.	kalo	ʔalo	karo	ʔalo	'dodge'
10.	aka	aʔa	aka	aʔa	'root'
11.	ʔahu	au	au	au	'gall'
12.	ʔulu	ulu	uru	poʔo	'head'
13.	ʔufi	ufi	uʔi	uhi	'yam'
14.	afi	afi	aʔi	uhi	'fire'
15.	faa	faa	ʔaa	haa	'four'
16.	feke	feʔe	ʔeke	heʔe	'octopus'
17.	ika	iʔa	ika	iʔa	'fish'
18.	ihu	isu	putaŋio	ihu	'nose'
19.	hau	sau	ʔau	hau	'dew'
20.	tafuafi	siʔa	ʔika	hiʔa	'firemaking'
21.	hiku	siʔu	ʔiku	hiʔu	'tail'
22.	hake	aʔe	ake	aʔe	'up'
23.	huu	ulu	uru	komo	'enter'
24.	maŋa	maŋa	maŋa	mana	'branch'
25.	maʔu	mau	mau	mau	'constant'
26.	maa	mala	mara	mala	'fermented'
27.	naʔa	faʔaŋa	maninia	naa	'quieten'
28.	nofo	nofo	noʔo	noho	'sit'
29.	ŋalu	ŋalu	ŋaru	nalu	'wave'
30.	ŋutu	ŋutu	ŋutu	nuku	'mouth'
31.	vaka	vaʔa	vaka	waʔa	'canoe'
32.	vaʔe	vae	vae	wae	'leg'
33.	laho	laso	raʔo	laho	'scrotum'
34.	lohu	lou	rou	lou	'fruit picking pole'
35.	oŋo	loŋo	roŋo	lono	'hear'
36.	ua	lua	rua	lua	'two'

- Last time, we came up with the proto-phonemes:

(2) Correspondence sets and proto-phonemes

	T		S		R		H	<	PP
1.	p	:	p	:	p	:	p	<	*p
2.	t	:	t	:	t	:	k	<	*t
3.	k	:	ʔ	:	k	:	ʔ	<	*k
4.	ʔ	:	Ø	:	Ø	:	Ø	<	*ʔ
5.	f	:	f	:	ʔ	:	h	<	*f
6.	h	:	s	:	ʔ	:	h	<	*s
7.	h	:	Ø	:	Ø	:	Ø	<	*h
8.	l	:	l	:	r	:	l	<	*l
9.	Ø	:	l	:	r	:	l	<	*r
10.	m	:	m	:	m	:	m	<	*m
11.	n	:	n	:	n	:	n	<	*n
12.	ŋ	:	ŋ	:	ŋ	:	n	<	*ŋ
13.	v	:	v	:	v	:	w	<	*v

- This allows us to look at the Proto-Polynesian consonant inventory:

(3) Proto-Polynesian consonant inventory

	Labial	Coronal	Dorsal	Glottal
Voiceless stops	*p	*t	*k	*ʔ
Voiceless fricatives	*f	*s		*h
Voiced fricatives	*v			
Nasals	*m	*n	*ŋ	
Lateral liquids		*l		
Rhotic liquids		*r		

⋆ Your remaining tasks:

(4) a. Identify all the sound changes that have occurred within Polynesian.
b. Establish whether there are any crucial orderings among these changes, in order to establish a relative chronology of the changes.
c. Use this information to posit sub-groupings within Polynesian. (Assume that only one language can branch off from the tree at any given stage.)

2 Tips for doing the comparative method

2.1 Cognates and correspondence sets

(1) **Identify and remove *non-cognates* from the comparison.**

- ○ When establishing your cognate sets, start by lining up words that have equivalent meanings, and then see if any of those words look like they don't have the same phonetic material. If that's the case, remove them from the cognate set.

→ This situation can arise when languages borrow words, or when meanings of words change such that a different word replaces the original member of the cognate set (which itself is either lost or takes on a new meaning).

- Note that this can be tricky if a language borrows a word from a related language/dialect, because then it still might look *similar enough*.
- Likewise, sometimes the replacement word may look similar to the original cognate, e.g. Samoan *pute*.

- ○ As you proceed, keep in mind that you may have been *wrong* — either you removed something that was a real cognate, or you kept something that wasn't. So be prepared to go back and revise your hypotheses once you've seen more data.

(2) a. **For every distinct correspondence set, posit a separate proto-phoneme...**
b. *Unless* **you find similar correspondence sets which are in *complementary distribution* (i.e. appear in non-overlapping contexts).**

- ○ If the situation in (2b) holds, then those two correspondence sets are to be reconstructed as a single proto-phoneme, where a *conditioned* sound change applied to create one of the correspondence sets.

- ○ If you find incomplete correspondence sets (because specific languages like the right cognate), collapse them with otherwise matching correspondence sets.
  - ...unless there are multiple sets that fit the bill, e.g. Polynesian cognate set #8 (— : — : ʔ : h), in which case you don't have enough information.

2.2 Reconstructing the phonetic value of the proto-phoneme

- The trickiest part of the comparative method is figuring out what the values of the proto-phonemes are.
- Here are several rules of thumb for this step, listed in approximate order of reliability.
  - ○ None are perfectly reliable, so you will want to find converging evidence across multiple of these tests whenever possible.

2.2.1 Preliminary guidelines

(1) **The same phonetic value can never be given to multiple proto-phonemes.**

- ○ This would mean that the languages showed an *unconditioned split*, which is not possible given the *regularity of sound change*.

(2) **The value you select for a proto-phoneme should be one of the sounds found in the correspondence set.**

- ○ This doesn't always work, because sometimes all the languages have undergone same change away from the original value.
- ○ But these cases are relatively rare, and shouldn't be appealed to unless absolutely necessary.

2.2.2 Rules of thumb

(3) **Find any correspondence sets where all the sounds in the set are the same, and immediately reconstruct that value.**

- This can eliminate further possibilities for other correspondence sets that may have similar sounds.

(4) **Pick a value that leads to *natural* sound changes.**

- Sound changes usually look like well-behaved phonological processes (changes in just one or two features, steps along lenition chains or palatalization chains, etc.); set up proto-phonemes that allow for any sound changes to look natural in this respect.

(5) **Pick the value that is reflected in the most languages ("majority rules").**

- This (generally) allows you to posit the fewest number of sound changes possible, which results in the most *economical* reconstruction.
- Beware though, that if your languages are not equally sampled from different subgroups, this rule of thumb may give you misleading results.

(6) **Pick values that result in "symmetrical" phonemic inventories for the proto-language.**

- Languages tend to re-use the same place distinctions across different manners — e.g. Proto-Polynesian has voiceless stops *p,t,k* and nasals *m,n,ŋ*.
- If you have a choice between positing a proto-phoneme that fills a gap vs. one that leaves a gap, choose the one that fills the gap.

(7) **Pick typologically *more common* sounds over typologically *less common* sounds.**

- We know that some sounds are more common cross-linguistically than others (e.g. front unrounded vowels are more common than front rounded vowels, velars are more common than uvulars, etc.).
- The more likely a sound is cross-linguistically, the more likely the proto-language had it.
- Beware though, that this line of reasoning may give opposite results from the rule about natural sound changes.

(8) **Pick the value that is attested in the oldest language in your sample.**

- The more time that a language has had to develop, the more likely it is to have changed.
- Therefore, statistically it is more likely that an earlier-attested language reflects the original state than a later-attested language. ...but this is by no means universal.

2.3 Sub-grouping

(9) **Sub-grouping is done on the basis of *shared innovations* not *shared retentions*.**

- The null hypothesis is that languages won't change any one particular feature. Therefore, the fact that two languages happen to have kept some feature of the proto-language unchanged does not prove that they are more closely related than a language which has changed.
- On the other hand, if two languages share the same change, it is highly likely that they do so because they were still a single language at the time of that change.

→ This allows us to avoid positing that the same change happened multiple times in multiple different languages.

(10) **The more sound changes two languages share, the more likely they are to be more closely related.**

3 Grimm's Law

- One of the most famous sound changes is "Grimm's Law" in the Germanic languages.
  - The following sets of data (adapted from Campbell 2013:136–138) show the correspondences among the Indo-European languages that motivate Grimm's Law.
  - Focus on the initial consonants, except in examples where a sound is bolded, in which case focus on that sound.

→ Use the comparative method to reconstruct the relevant consonants of Proto-Indo-European (PIE), and identify the sound change(s) between PIE that constitute Grimm's Law.

(1) Correspondence set 1:

Sanskrit	Greek	Latin	Gothic	English
pad-	pod-	ped-	foːtus	*foot*
páɲca	pénte	(*penk^{w}e >) k^{w}ink^{w}e	fimf	*five*
pra-	pro-	pro-	fra-	*fro*
puː- 'make clear, bright'	pur	puːrus 'pure'	[OE fyːr]	*fire*
pitár-	patéːr	pater	faðar	*father* [OE fæder]
nápaːt- 'descendant'	—	nepoːs 'nephew, grandson'	[OHG nefo]	*nephew* [OE nefa]

(2) Correspondence set 2:

Sanskrit	Greek	Latin	Gothic	English
triː-/tráyas	treiːs/tría	treːs	θrija	*three*
tv-am	[Doric tuː]	tu	θu	*thou*
-ti- (gátis 'gait')	(*-ti- >) -si- (básis 'going')	-ti- (mortis 'death')	—	*-th* (*health*, *birth*, *death*) 'nominalizer'

(3) Correspondence set 3:

Sanskrit	Greek	Latin	Gothic	English
ʃvan-	kúoːn	kanis	hunds	*hound* 'dog'
ʃatám	(he-)katón	kentum	hunda (pl.)	*hundred*
ʃravís 'raw flesh'	kré(w)as 'flesh, meat'	kruor 'raw, blood, thick'	—	*raw* [OE hraːw 'corpse']
dáʃa	déka	dekem	tɛhun	*ten*

(4) Correspondence set 4:

Sanskrit	Greek	Latin	Gothic	English
[Lithuanian dubus]	—	—	diups	*deep* [OE deːop]
—	kánnabis	—	—	*hemp*
—	—	luːbrikus	sliupan	*slip*

(5) Correspondence set 5:

Sanskrit	Greek	Latin	Gothic	English
d(u)váː-	dúo(ː)	duo	twai	*two*
dánt-	odónt-	dent-	tunθus	*tooth*
dáʃa	déka	dekem	tɛhun	*ten*
pad-	pod-	ped-	foːtus	*foot*
ad- 'eat'	édoː 'I eat'	edoː 'I eat'	—	*eat* [OE etan]
véːda 'I know'	(w)oida 'I know'	videoː 'I know'	wait 'to know'	*wit* 'to know'

(6) Correspondence set 6:

Sanskrit	Greek	Latin	Gothic	English
ɟanás	génos	genus	kun-i ‘race, tribe’	*kin*
ɟánu-	gónu	genuː	kniu	*knee*
ɟnaːtá	gnoːtós	(g)noːtus	kunnan ‘to know’	*known*
áɟra- ‘country’	a**g**rós	a**g**er	a**k**rs	*acre* ‘field’
mr̥ɟ- ‘to milk’	amél**g**oː ‘I squeeze out’	mul**g**eoː ‘I milk’	milu**k**-s ‘milk’	*milk*

(7) Correspondence set 7:

Sanskrit	Greek	Latin	Gothic	English
b^{h}ar-	p^{h}ér-	fer-	bɛran ‘to bear’	*bear*
b^{h}ráːtar	p^{h}ráːteːr	fráːter	broːθar	*brother*
a-**b^{h}**uː-t ‘he was’	é-**p^{h}**uː ‘he grew, sprang up’	**f**u-it ‘he was’	**b**ɔː-an ‘to dwell’	***be***

(8) Correspondence set 8:

Sanskrit	Greek	Latin	Gothic	English
d^{h}aː- ‘put’	ti-**t^{h}**eː-mi ‘I put’	**f**eː-kiː ‘I made’	—	***do*** [OE **d**oː-n]
d^{h}r̥ṣnóti ‘he dares’	t^{h}rasús ‘bold’	—	(ga-)dars ‘he dares’	*dare*
d^{h}vaːr-	t^{h}úr-a	for-eːs	dor	*door*
vi**d^{h}**ávaː	eː-(w)í**t^{h}**e(w)os ‘unmarried youth’	vi**d**ua	wi**d**uwo	*wi**d**ow*
má**d^{h}**u	mé**t^{h}**u	—	—	*mea**d***
ma**d^{h}**ya-	(*mé**t^{h}**yos >) mésos	me**d**ius	mi**d**jis	*mi**d***

(9) Correspondence set 9:

Sanskrit	Greek	Latin	Gothic	English
hã(n)s-á- ‘swan, goose’	k^{h}eːn	aːns-er	[German gans]	*goose*
sti**h**- ‘stride’	steí**k^{h}**oː ‘I pace’	—	sti**g**an ‘to climb’	—
va**h**- ‘carry’	wó**k^{h}**-os ‘chariot’	ve**h**-oː ‘I carry’	ga-wi**g**-an ‘to move, shake’	*wa**g**on*

(10) Correspondence set 10:

Sanskrit	Greek	Latin	Gothic	English
(*s**p**áʃ- >) páʃ-	(***s**pek- >) skep-	s**p**ek-	[OHG s**p**eh-]	***sp**y* ‘to see’
—	(*s**p**uː- >) puː-	s**p**u-	s**p**iːw-an	***sp**ew* ‘to spit’

(11) Correspondence set 11:

Sanskrit	Greek	Latin	Gothic	English
aṣ**ṭ**stáːu	ok**t**oː	ok**t**oː	ah**t**au	*eigh**t***
nák**t**-	nuk**t**-	nok**t**-	nah**t**s	*nigh**t***
—	—	kap**t**(iːvus)	—	[OE hæf**t**] ‘prisoner’

(12) Correspondence set 12:

Sanskrit	Greek	Latin	Gothic	English
—	—	pis**k**is	fis**k**s	*fish* [OE fis**k**]