

Ling 105  
*Sounds of Language*

Tuesday, October 8, 2024

Kevin Ryan

# Midterm

- Tuesday, October 15 (normal class time & place)
  - ① Narrow IPA transcription of 10 English words
  - ② 25 multiple choice questions
  - ③ 5 short answer
- Closed book; IPA chart not provided (but will be for final)

# IPA for midterm: know these symbols

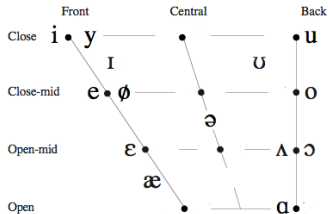
	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ			j				
Lateral approximant				l		ɭ	ʎ				

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

## CONSONANTS (NON-PULMONIC)

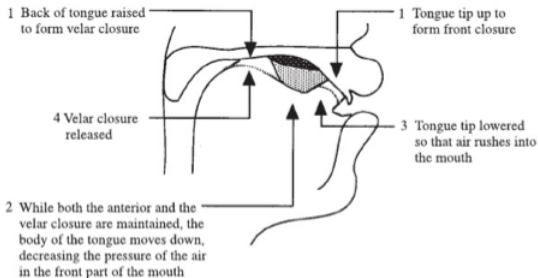
Clicks	Voiced implosives	Ejectives
◌ǀ Bilabial	◌ɓ Bilabial	◌' Examples:
◌ǃ Dental	◌ɗ Dental/alveolar	◌p' Bilabial
◌ǂ (Post)alveolar	◌ɠ Palatal	◌t' Dental/alveolar
◌ǁ Palatoalveolar	◌ɠ Velar	◌k' Velar
◌ǁ Alveolar lateral	◌ʄ Uvular	◌s' Alveolar fricative

## VOWELS



# Articulation of a dental click

- (1) Anterior & posterior closures
- (2) Rarefaction
- (3) Anterior release
- (4) Posterior release



## Clicks: IPA

- “Clicks are stops in which the essential component is the rarefaction of air enclosed between two articulatory closures formed in the oral cavity, so that a loud transient is produced when the more forward closure is released” (Ladefoged & Maddieson 1996: 246)
- IPA (with [k] accompaniment): symbol origins/mnemonics and some English ideophones

[k⊙] bilabial

[k||] dental (*tsk-tsk* or Arabic negative)

[k!] post-alveolar (like a woodblock or horse trot;  
not sublingual “cluck”)

[k||] lateral (goad a horse)

[k‡] palato-alveolar

## Clicks: IPA

- Why is the rearmost click palatal?

## Examples from !Xóõ

[kʋʔô:]	bilabial	“get stuck”	♪
[k ʔâ:]	dental	“die”	♪
[k!ʔá:]	post-alveolar	“be seated”	♪
[k  ʔā:]	lateral	“not to be”	♪
[k≠ʔà:]	palatal	“shoot you”	♪

- Place audible from cavity size & transient features
- From low to high frequency: bilabial, dental, palatal
- But ! is lowest of all due to its retroflexion

## Clicks: accompaniments

- A click can have any phonation & nasality, as indicated by the accompanying symbol
- Posterior closure (1st symbol): velar or uvular; oral or nasal (but must be a stop)
- Anterior closure (2nd symbol): bilabial to palatal
- E.g. [k!] is *one sound*
- Release can be followed by <sup>h</sup>, ʔ, a fricative, an ejective, etc. (e.g. [k!'] is an ejective post-alveolar click)



## Post-alveolar clicks in Xhosa

- Xhosa ([ˈk||<sup>h</sup>oːsa], English [ˈk<sup>h</sup>oʊsə]; spoken in South Africa)

[ukúk!oʔa]	voiceless	“to break stones”	♪
[ukúk! <sup>h</sup> ola]	aspirated	“perfume”	♪
[ukúg!oba]	breathy voiced	“to scoop”	♪
[ukúŋ!ola]	nasal	“to climb up”	♪
[ukúŋ!ala]	breathy voiced nasal	“to go straight”	♪

## Clicks in orthography

- Beginning of Miriam Makeba's 1960 hit "The Click Song (Qongqothwane)"
- Xhosa orthography

Igqirha lendlela nguqo ngqothwane  
Seleqabele gqithapha nguqo ngqothwane

- IPA

[iǧ<sup>h</sup>ixá lenǰéla (...) ŋuk!<sup>h</sup>u ŋ!<sup>h</sup>ot<sup>h</sup>wane]  
[selek!<sup>h</sup>abele ǧ!<sup>h</sup>it<sup>h</sup>ap<sup>h</sup>a ŋuk!<sup>h</sup>u ŋ!<sup>h</sup>ot<sup>h</sup>wane]

- "Diviner of roadways, he's the knock-knock beetle  
Already he climbs up and passes by here, he's the  
knock-knock beetle"

# Clicks: accompaniments

- Transcribe the following Xhosa phoneme in IPA
  - Post-alveolar & velar closures, voiceless
  - Lowered velum
  - Breathy voicing

# Clicks: accompaniments (Lad. & Mad. 1996)

SYMBOL	DESCRIPTION: Alveolar click plus: –	EXAMPLE LANGUAGES
1 g!	Voiced velar plosive	!Xóó, Zhu 'hōasi
2 k!	Voiceless unaspirated velar plosive	all four
3 k! <sup>h</sup>	Aspirated velar plosive	all four
4 ŋ!	Voiced velar nasal	all four
5 ɡ!	Breathy voiced velar plosive	Xhosa
6 ŋ̤!	Breathy voiced velar nasal	Xhosa
7 ŋ! <sup>h</sup>	Voiceless aspirated velar nasal (delayed aspirated)	Nama, !Xóó, Zhu
8 k! <sup>ʔ</sup>	Voiceless velar plosive and glottal stop	Nama, !Xóó, Zhu
9 k! <sup>x</sup>	Voiceless affricated velar plosive	!Xóó, Zhu 'hōasi
10 g! <sup>h</sup>	Voiced velar plosive followed by aspiration	!Xóó, Zhu 'hōasi
11 gk! <sup>x</sup>	Voiced velar plosive followed by voiceless velar fricative	!Xóó, Zhu 'hōasi
12 k! <sup>xʰ</sup>	Affricated velar ejective	Zhu 'hōasi
13 g! <sup>k xʰ</sup>	Voiced velar plosive followed by voiceless affricated ejective	Zhu 'hōasi
14 ŋŋ! <sup>h</sup>	Voiced velar nasal followed by voiceless aspirated velar nasal	Zhu 'hōasi
15 ŋ̤!	Voiceless velar nasal	!Xóó
16 ʔŋ!	Preglottalized velar nasal	!Xóó
17 ɠ!	Voiced (optionally prenasalized) uvular plosive	!Xóó
18 q!	Voiceless unaspirated uvular plosive	!Xóó
19 k!'q'	Voiceless velar ejective, followed by uvular ejective	!Xóó
20 g! <sup>q'</sup>	Voiced velar plosive, followed by uvular ejective	!Xóó
21 ɠ! <sup>h</sup>	Voiced uvular plosive, followed by aspiration	!Xóó

- Tuu language of Botswana & Namibia
- A few thousand speakers
- San group of Kalahari
- Probably the richest inventory in the world
  - 50+ clicks alone (counting accompaniments as tautosegmental)
  - Jeff Mielke's p-base: 162 phonemes
  - In Maddieson's UPSID (451 languages), !Kung has the largest inventory (141), but !Xóõ isn't included (cf. English ~40, some languages ~10)

# !Xóõ clicks & clusters (L&M 1996)

Table 8.4 Words illustrating clicks and clusters involving clicks in !Xóõ

	BIABIAL	DENTAL	ALVEOLAR	LATERAL	PALATAL
1	gOòò '(type of worm)'	g áá 'work'	g!áá 'accompany'	g  áá 'beg'	gþáá 'exploit'
2	kOóó 'dream'	k áá 'move off'	k!áá 'wait for'	k  áá 'poison'	kþáá 'bone'
3	kO'ou 'ill fitting'	k 'áá 'be smooth'	k!'áá 'inside'	k  'áá 'other'	kþ'áá 'stamp flat'
4	gOóó 'be split'	g áá 'spread out'	g!áá 'brains'	g  áá 'light up'	gþáá 'depress'
5	qOóu 'wild cat'	q áá 'rub with hand'	q!áá 'hunt'	q  áá 'thigh'	qþáá 'conceal'
6	ŋOóó 'louse'	ŋ áá 'see you'	ŋ!áá 'one's peer'	ŋ  áá 'grewia berry'	ŋþáá 'peer into'
7	ŋOáá 'be close together'	ŋ áá 'be careful'	ŋ!áá 'evade an attack'	ŋ  áá 'be damp'	ŋþáá 'be out of reach'
8	ʔŋOáje 'tree'	ʔŋ áá 'to suit'	ʔŋ!áá 'lie horizontal'	ʔŋ  áá 'amount'	ʔŋþáá 'right side'
9	ŋO'óó 'smeared with dirt'	ŋ 'áá 'look for spoor'	ŋ!'áá 'fall'	ŋ  'áá 'carry'	ŋþ'áá 'ahead'
10	kO'óó 'walk slowly'	k 'áá 'dance'	k!'áá 'go a distance'	k  'áá 'scrape'	kþ'áá 'mind out'
11	gO'kxána 'make fire with sticks'	g 'kxáá 'splatter water'	g!'kxán 'soften'	g  'kxáá 'calf muscle'	gþ'kxáá 'sneeze'
12	kO'q'óm 'delicious'	k 'q'áá 'hand'	k!'q'áá 'spread out'	k  'q'áá 'grass'	kþ'q'áá 'neck'
13	gO'q'óó 'fly'	g 'q'áá 'chase'	g!'q'áá 'cry incessantly'	g  'q'áá 'tumor'	gþ'q'áá 'ground to powder'
14	gO'hóó 'sp. bush'	g háá 'stale meat'	g háá 'thorns'	g  háá 'bone arrow tip'	gþháá 'cut'
15	kO'óó 'be stiff'	k 'áá 'die'	k!'áá 'be seated' [pl.]	k  'áá 'not to be'	kþ'áá 'shoot you'
16	qO'úm 'close mouth'	q 'án 'small' [pl.]	q!'áá 'stickgrass'	q  'úpa 'turn one's back'	qþ'án 'lay down' [pl.]
17	—	g háo 'put into'	g hápa 'grey haired'	g+háe 'push away'	—

## A !Xóõ story (from UCLA Phonetics Archive)

⇒ Praat: !Xóõ story & conversation

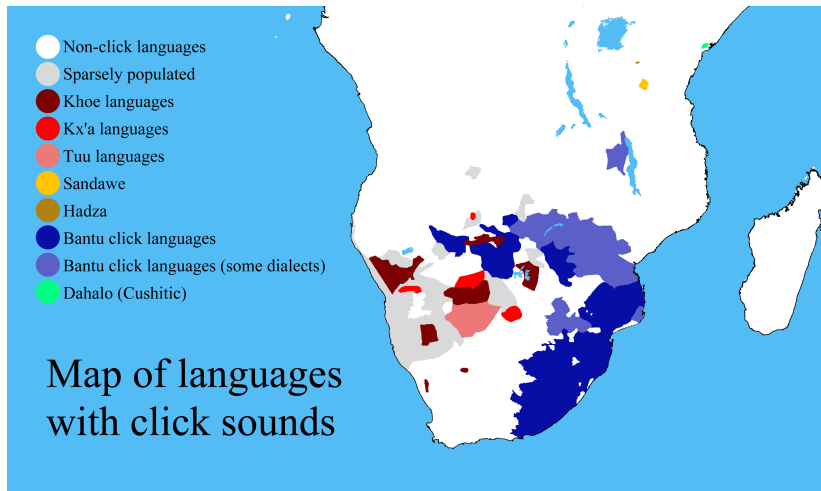
qaa !ali 'a'h Borollxao 'a'h u'asa !a'e'h oi 'h'gaan isu  
!a'e'h ku l'galute tu l'jau lu'h'umate ci dao ts'oe ku.  
u'h'lei h'um ka ba 'h'j'nte !gō !gu'ma i l'je h'asa i  
!ubeku'h'um ci ll'ua te li ce ce !jau ts'oe bi'h'ju l'a la  
i ll'oa ba l'guma ll'jute. u'h'lei h'um sa ce te bullei ba  
h'3n'se la qaisa i h'gō'h' ce t'um kã l'h' cele ben'kele  
li ei 'h'gaan ce. xabeka !ali ll'um i tē'ē e'h'āōku ci  
dzai ce o'je i kaneka !a'e'h ku l'galute te i'e o'je e'h'ka  
ba 'ao 'ah' i ba sa ts'anci ll'ua 7iqat'e Borollxao h'um  
ce xabeka h'asa ll'um i tē'ē h' ce !xã ku'h'um'u h'j  
l'guma t'ani. i'h'lei ka ba qat'i ll'ua il'je !jã ta ll'alika  
isa h'gō'h' ka t'ani kã l'h' ci h'j'gan i h'gō'h' kã 'ansa  
i'e ill'hoa ci dzai. Borollxao o'h'ate h'asa itē'ē le ll'oa

Long ago !ali and Borollxao went hunting after wildebeest at  
Kang, whose tracks they had seen in the road. When the two  
were leaving Taketshwane they saw h'asa and he told them of a  
young springbok which was at the water hole, whose hoof was  
hurt and who was not able to run. They agreed to go to it  
wanting to kill it and sell its skin to the whiteman's store at  
Kang. But then !ali refused and said he was extremely hungry  
and wanted to hunt the wildebeest and eat their meat. If he  
could do that he would return to the young springbok and kill it.  
Borollxao agreed but h'asa refused and said that he was the  
oldest person amongst themselves and he knew a lot. Were they  
to kill the springbok they would get a lot of money and they  
could go and buy things from the whiteman in Kang; they could  
buy food and eat and not be hungry. Borollxao asked h'asa

## “Click languages”

- Khoisan languages
  - Cover term for a few unrelated language families of southern Africa, ethnically San or Khoikhoi, plus isolates
  - Historically covered more of Africa
- Certain Bantu languages of the deep south
  - Historically borrowed from Khoisan
  - Zulu, Xhosa, etc. (Nguni), nowadays the most populous “click languages”
- Marginally in one Afro-Asiatic language
  - A few dozen dental clicks in Dahalo; borrowed
- Damin, an extinct ritual code of Australia





(credit: Reddit u/qoja)

# On the rarity of clicks

- With a slightly different world history, they could've disappeared
- How much is accidental in the contemporary typology?

## Where are all the clicks?

“...they are fairly easy to produce. Almost any child can, and probably does, make bilabial, dental, and lateral clicks as extralinguistic noises. Nor have we found any real difficulty in teaching students to integrate these sounds into syllables, although many have difficulty in avoiding nasalizing clicks and the adjoining vowels. In our experience, most clicks are much easier to teach people to make than ejectives or implosives. Considering also their perceptual salience, it might seem as if they should be highly favored in the world’s languages. Their desirability is evidenced by the fact that they were readily borrowed from Khoisan into the neighboring Nguni languages. Their ready acceptance and retention was no doubt facilitated by their phonetic qualities. Indeed, we cannot explain why these easy to make and perceptually optimal consonants are found in so few languages...” (Ladefoged & Maddieson 1996: 279)

# Where are all the clicks?

“If clicks are in a sense ‘ideal’ segments from an auditory point of view, why are they so limited in their distribution?” (Traill 1997:115)

- They also used to be more broadly distributed across Africa
- No known case of click genesis, only loss (recall e.g. implosive genesis in Sindhi)
- Triangulating, did all humans once speak click languages?

# Where are all the clicks?

- Blevins in *Evolutionary phonology* (2004): evidence that clicks are marked
  - Function words in click languages are typically clickless
  - Clickful words sometimes have clickless variants
  - Nguni sound changes eliminate clicks (but not vice versa)
  - Clicks are acquired late
  - Nguni's original borrowing of clicks wasn't so freewheeling, but the result of intermarriage & *hlonipha*