

# Kēlen by Sylvia Sotomayor

	LABIAL	DENTAL	ALVEOLAR	POST-ALV.	PALATAL	VELAR
STOP	p~b		t~d		c~tʃ	k~g
FRICATIVE	ɸ~β	θ~ð	s~z	ʃ~ʒ	ç~j	h~ɣ
NASAL	m		n		ɲ	ŋ
APPROX.			r, l		ʎ	

	FRONT	CENTRAL	BACK
CLOSE	i, iː	ɨ	u, uː
MID	ɛ, ɛː		ɔ, ɔː
OPEN		a, aː	

# ALLOPHONY

pie ~ spy  
key ~ ski  
two ~ stew

p<sup>h</sup>aj ~ spaj

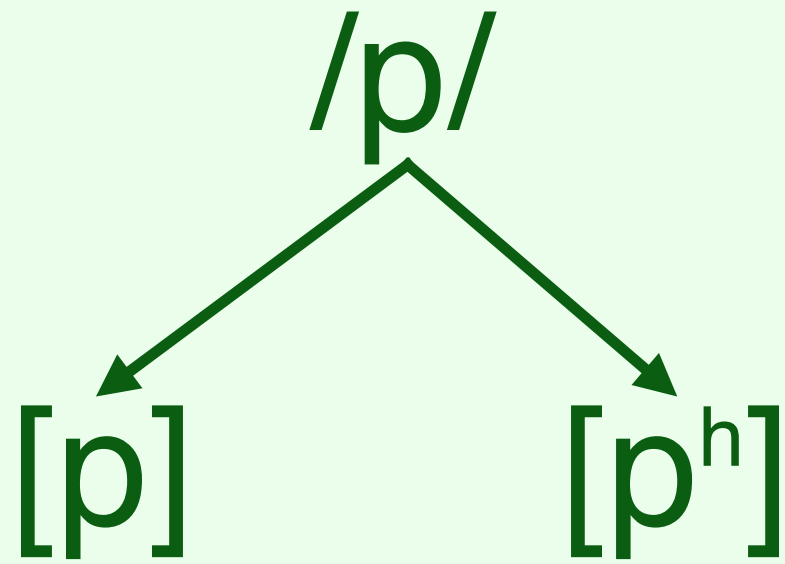
k<sup>h</sup>i ~ ski

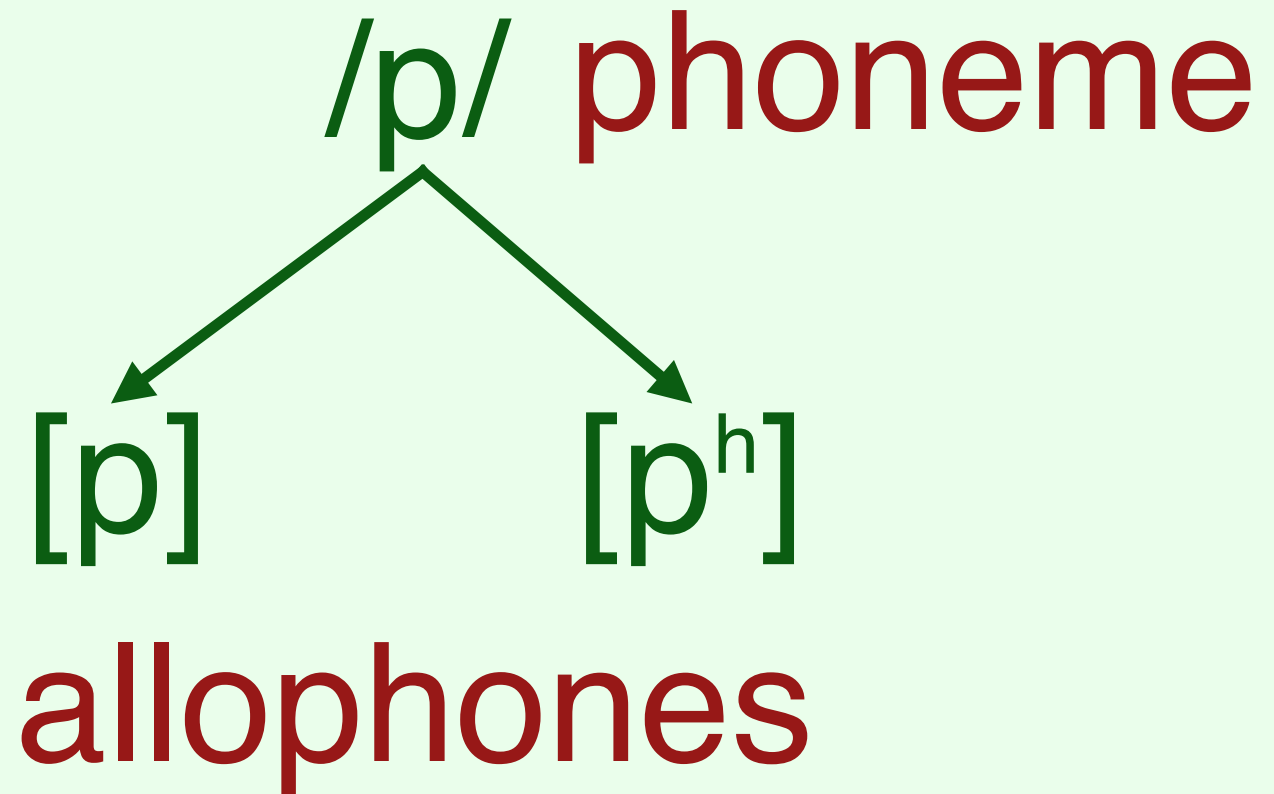
t<sup>h</sup>u ~ stu

prepare ~ preparation

p<sup>h</sup>ɹə.'p<sup>h</sup>ɛɹ ~ 'p<sup>h</sup>ɹɛ.pə.'ɹe.ʃɪn

Same phoneme; different  
sounds. Variation  
predictable.







/phonemes/  
[allophones]

If /X/ is the phoneme, we have to explain why /X/ shows up as either [Y] or [Z].

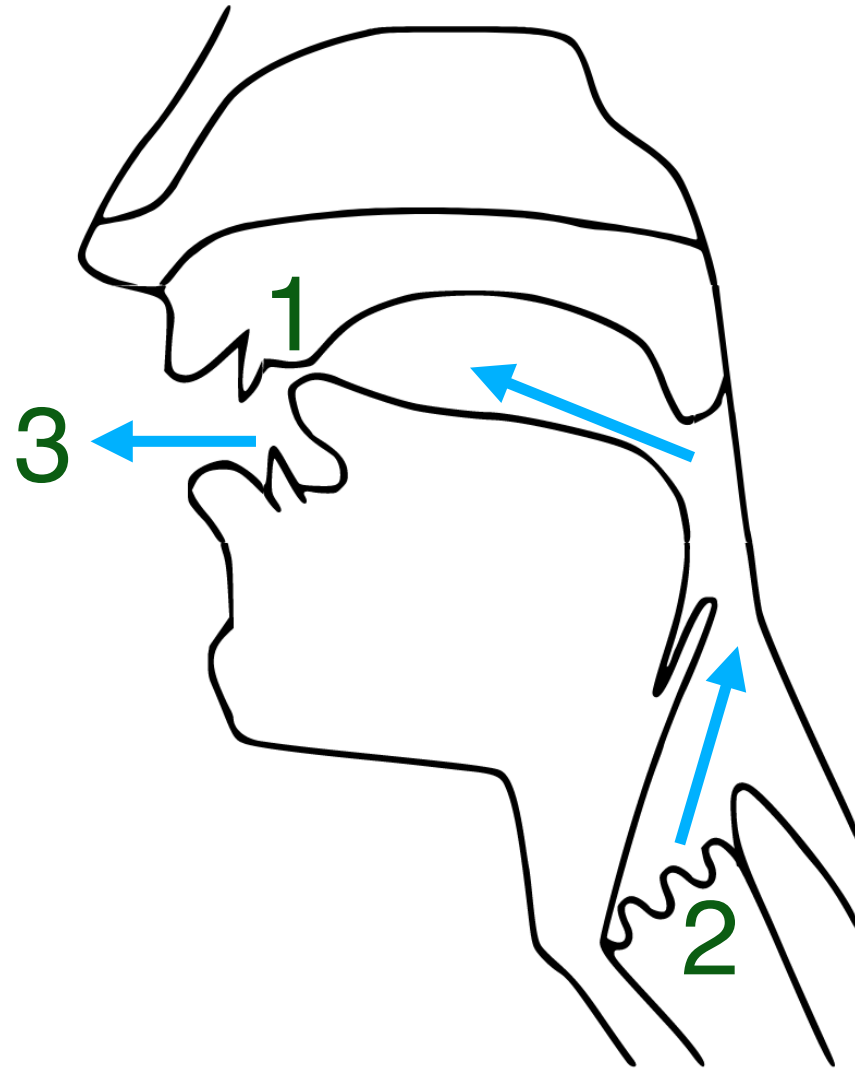
$A > B / C\_D$

/p/ > [p<sup>h</sup>] / #\_

/t/ > [t<sup>h</sup>] / #\_

/k/ > [k<sup>h</sup>] / #\_

C[-voice] > C<sup>h</sup> / #\_



[p] vs. [p<sup>h</sup>]

[p] vs. [p<sup>h</sup>]

- Pronounced with the lips
  - Stops
  - Voiceless



[p] vs. [p<sup>h</sup>]

- Pronounced with the lips
  - Stops
  - Voiceless

# [p] vs. [p<sup>h</sup>]

+consonantal

-sonorant

-syllabic

[p] vs. [p<sup>h</sup>]

+labial

-coronal

-dorsal

# [p] vs. [p<sup>h</sup>]

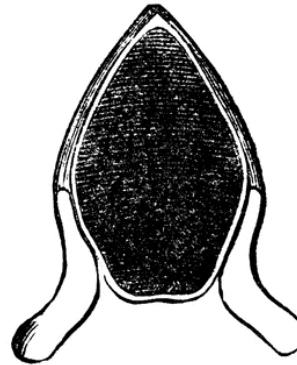
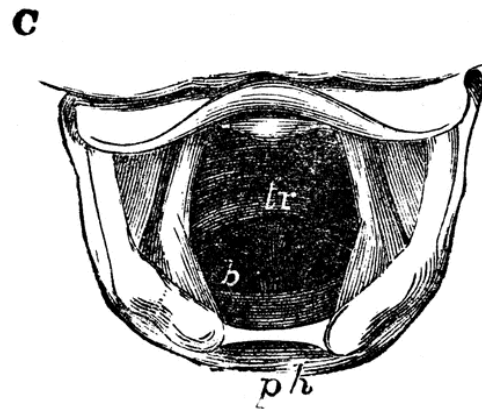
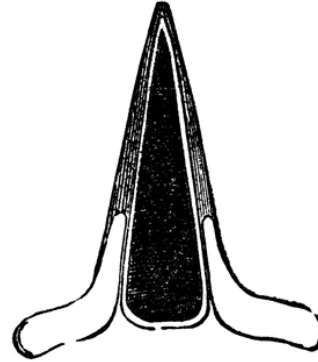
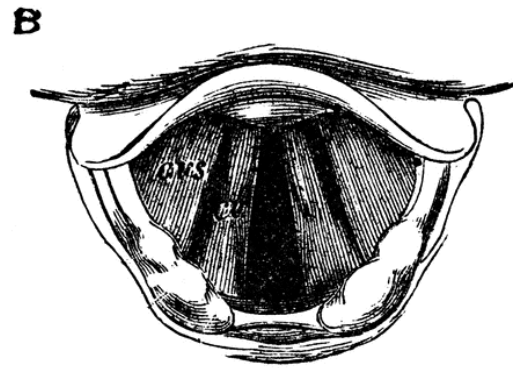
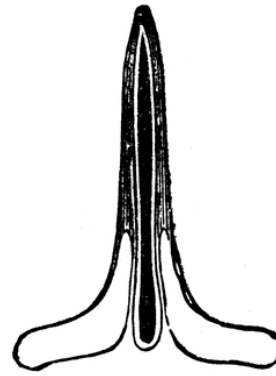
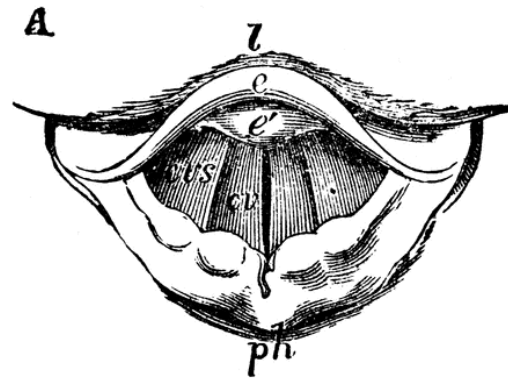
- continuant
- lateral
- nasal
- delayed release

# [p] vs. [p<sup>h</sup>]

-voice

-constricted glottis

(+/-)spread glottis



$A > B / C\_D$

/p/ > [arim] / s\_

/p/ > [l] / #\_



\*spaj > sdrimaj

\*pλk > lλk

Why?

# SOUND SYSTEMS

	LABIAL		DENTAL		ALVEOLAR	PALATAL		VELAR	
NASAL	m				n	ɲ			
STOP	p	b	t	d		tʃ	dʒ	k	g
CONTINUANT	f				s			x	
LATERAL					l				
FLAP					ɾ				
TRILL					rr				

	FRONT	BACK
HIGH	i	u
MID	e	o
LOW	a	

# Voiced Consonants

-Voicing is easier to maintain in the front of the mouth

-b > g

# Voiced Consonants

-Igbo: k, ŋ, gb

-Same applies to  
implosives.

# Ejectives

-Easier in the back of the mouth than the front

-k' > p'



# Sonorants

- Voiced by default
- Not uncommon to find them as nuclei

# Geminates

- Sonorant geminates > fricative geminates > stop geminates
- Voiceless > voiced

# Coronals

- Privileged class,  
morphologically
- Fewer syllabic  
restrictions

# Affricates

-Coronal > others

# Aspiration

- Voiceless > voiced
- Stops > fricatives > other

# Rhotics

- They do funny stuff
- Attract retroflex consonants

# Laterals

- Pretty much always coronal
- Tend to get lost in coda position

# Palatals

- Cause palatalization
- Post-alveolar sounds  
“stronger”; attract palatals



# High Vowels

- Deflect nasalization

- Strong effect on  
consonants

- Opposite rounding not at  
all uncommon

# Mid Vowels

-ATR harmony most common here

-Usually at least two (not true of high/low)

# Low Vowels

- Not many distinctions
- Deflect rounding
- Less precise placement

# Front Vowels

- Height/rounding distinctions common
- Cause palatalization

# Back Vowels

- Opposite rounding less common
- Height distinctions less common

# Central Vowels

- Notoriously mercurial
- Height/rounding distinctions rather uncommon

Natlang,  
conlang, or  
gibberish?

Sound System Apple

	Labial	Alveolar	Retroflex	Palatal	Velar
<b>Stop</b>	p	t	ʈ	c	k
<b>Fricative</b>					
<b>Affricate</b>					
<b>Nasal</b>	m	n	ɳ	ɲ	ŋ
<b>Trill/Flap</b>		r	ɽ		
<b>Lateral</b>		l	ɭ	ʎ	
<b>Approximant</b>			ɻ	j	w

	Front	Central	Back
<b>Close</b>	i, iː		u, uː
<b>Close-Mid</b>			
<b>Mid</b>			
<b>Open-Mid</b>			
<b>Open</b>		a, aː	



**NATLANG!**

**Warlpiri**

### Sound System Banana

	Labial	Labio-Dental	Alveolar	Palatal	Velar	Glottal
<b>Stop</b>	p/b, p'/b'		t, t'		k/g, k'	ʔ
<b>Fricative</b>		f	s/z, s'	ʃ/ʒ, ʒ'		
<b>Affricate</b>			ts, ts'			
<b>Nasal</b>	m		n			
<b>Trill/Flap</b>		v	r			
<b>Lateral</b>			l			
<b>Approximant</b>				j, j'	w	

	Front	Central	Back
<b>Close</b>	ɪ, ɪː	ʉ, ʉː	
<b>Close-Mid</b>	e, eː	ə, əː	
<b>Mid</b>			
<b>Open-Mid</b>	ɛ, ɛː		
<b>Open</b>			ɑ, ɑː

CONLANG!  
Nolwynn

Sound System Cherry

	Labial	Alveolar	Post-Alveolar	Palatal	Velar	Glottal
<b>Stop</b>	p/b	t/d		c/ɟ	k/g	ʔ
<b>Fricative</b>	f	s/z	ʃ			h
<b>Affricate</b>						
<b>Nasal</b>	m, m <sup>b</sup>	n, n <sup>d</sup>		ɲ, ɲ <sup>t</sup>	ŋ, ŋ <sup>g</sup>	
<b>Trill/Flap</b>		r				
<b>Lateral</b>		l				
<b>Approximant</b>				j	w	

	Front	Central	Back
<b>Close</b>	i, ĩ	ɨ, ɨ̃	u, ũ
<b>Close-Mid</b>	e, ẽ		o, õ
<b>Mid</b>		ə, ə̃	
<b>Open-Mid</b>	ɛ, ɛ̃		ʌ, ʌ̃, ɔ, ɔ̃
<b>Open</b>		a, ã	

# NATLANG!

## Acehnese

Sound System Fig

	Labial	Alveolar	Palatal	Velar	Uvular	Glottal
<b>Stop</b>	p, b	t, d, d̥		k, g	q, ɢ	ʔ
<b>Fricative</b>	ɸ	s	ʃ/ʒ			h
<b>Affricate</b>		ts	tʃ			
<b>Nasal</b>	m	n		ŋ		
<b>Trill/Flap</b>		r				
<b>Lateral</b>		l				
<b>Approximant</b>			j	w		

	Front	Central	Back
<b>Close</b>	i	ɨ	u
<b>Close-Mid</b>	e		o
<b>Mid</b>		ə	
<b>Open-Mid</b>			ɔ
<b>Open</b>		a	

**GIBBERISH!**

### Sound System Grape

	Labial	Dental	Palatal	Velar	Uvular
<b>Stop</b>	p, pj	t, th, ti, tʰ		g, gj	ɢ
<b>Fricative</b>		s, ʒ, ʒj	ʃ	x, xj	
<b>Affricate</b>		ts, tʃh	tʃ, tʃh		
<b>Nasal</b>	m, mj	n, nj		ŋ	
<b>Trill/Flap</b>		r, rj			
<b>Lateral</b>					
<b>Approximant</b>			j	w, wj	

	Front	Central	Back
<b>Close</b>	i, i:		ʊ, ʊ:, u, u:
<b>Close-Mid</b>	e, e:	ə	o:
<b>Mid</b>			
<b>Open-Mid</b>			ɔ, ɔ:
<b>Open</b>		a, a:	



# NATLANG!

## Mongolian

Sound System Kiwi

	Lab.	Dent.	Alve.	Post-Alve.	Retr.	Pal.	Velar	Uvul.	Phar.	Glott.
<b>Stop</b>	p, p'		t, t'		ʈ, ʈ'		k, k'	q, q'		ʔ
<b>Fric.</b>	f/v	θ	s/z	ʃ/ʒ	ʂ/ʐ		x/χ		ħ	
<b>Affric.</b>	pf, pf'		ts, ts'	tʃ, tʃ'	tʂ, tʂ'					
<b>Nasal</b>	m		n				ŋ			
<b>Trill/ Flap</b>			r		ɾ					
<b>Lateral</b>			l		ɭ					
<b>Approx.</b>						j	w			

	Front	Central	Back
<b>Close</b>	i, i:		u, u:
<b>Close-Mid</b>	e:		o:
<b>Mid</b>		ə	
<b>Open-Mid</b>	ɛ		ɔ
<b>Open</b>		a	

**GIBBERISH!**

## Sound System Mango

	Labial	Dental	Alveolar	Palatal	Velar	Glottal
<b>Stop</b>	p	t			k, kw	ʔ
<b>Fricative</b>			s	ʃ		h
<b>Affricate</b>			ts	tʃ		
<b>Nasal</b>	m		n	ɲ		
<b>Trill/Flap</b>			r			
<b>Lateral</b>			l			
<b>Approximant</b>				j	w	

	Front	Central	Back
<b>Close</b>	i		
<b>Close-Mid</b>	e, ě		o, õ
<b>Mid</b>			
<b>Open-Mid</b>			
<b>Open</b>		a, ã	

CONLANG!

Tmašare?

Sound System Orange

	Labial	Alveo.	Post-Alveo.	Alveo.-Pal.	Retro.	Pal.	Velar	Uvular	Phar.	Glottal
Stop	p/b, p', pw'	t/d, t', tw'					kw/ gw, kw'	q, qw		ʔ, ʔw
Fric.	f	s/z, ʃ/ ʒ, ʃ'	ʃ/ʒ, ʃ', ʃw/ ʒw, ʃw'	ʃ/ʒ	ʒ/z		x/ɣ	χ/ʁ, χw/ ʁw	ħ	
Affric.		ts/dz, ts', tsw/ dzw	tʃ/dʒ, tʃ'		tʃ, tʃ'					
Nasal	m	n								
Trill/ Flap		r								
Lateral										
Approx.						j	w			

	Front	Central	Back
Close			
Close-Mid			
Mid		ə	
Open-Mid		ɜ	
Open		a	

**NATLANG!**

**Adynghe**

### Sound System Pear

	Labial	Coronal	Retroflex	Palatal	Velar	Glottal
<b>Stop</b>	p/b, <sup>m</sup> b	t/d, <sup>n</sup> d	ʈ/ɖ, <sup>n</sup> ɖ		k/g, <sup>ŋ</sup> g	
<b>Fricative</b>		s				h
<b>Affricate</b>				tʃ/dʒ		
<b>Nasal</b>	m	n	ɳ	ɲ	ŋ	
<b>Trill/Flap</b>		r				
<b>Lateral</b>		l				
<b>Approximant</b>	ʋ			j		

	Front	Central	Back
<b>Close</b>	i, i:		u, u:
<b>Close-Mid</b>	e, e:		o, o:
<b>Mid</b>			
<b>Open-Mid</b>			
<b>Open</b>	æ, æ:	a, a:	



# NATLANG!

## Sinhalese

### Sound System Strawberry

	Labial	Dental	Alveo.	Post-Alveo.	Retro.	Palatal	Velar	Uvular
<b>Stop</b>	p/b		t/d				k/g	
<b>Fricative</b>	f/v	θ/ð	s/z	ʃ/ʒ			x	ʁ
<b>Affricate</b>			ts/dz	tʃ/dʒ				
<b>Nasal</b>	m		n				ŋ	
<b>Trill/Flap</b>					ɾ			
<b>Lateral</b>			l					
<b>Approx.</b>						j	w	

	Front	Central	Back
<b>Close</b>	i, I		u
<b>Close-Mid</b>	e		o
<b>Mid</b>			
<b>Open-Mid</b>			ʌ
<b>Open</b>			ɑ

CONLANG!  
Teonaht

Sound System Tangerine

	Lab.	Dent.	Alve.	Post-Alve.	Retr.	Pal.	Velar	Uvul.	Phar.	Glott.
<b>Stop</b>	p/b, p <sup>h</sup> , p'	t/d, t <sup>h</sup> , t'				c/ɟ, c <sup>h</sup> , c'	k/g, k <sup>h</sup> , k'	q/G, q <sup>h</sup> , q'		ʔ
<b>Fric.</b>	f/v	θ/ð	s/z, ʃ	ʃ/ʒ	ʂ/ʐ	ç/ʝ	x/ɣ	χ/ʁ	ħ	h
<b>Affric.</b>			ts/ dz, tʂ <sup>h</sup> , ts'	tʃ/dʒ, tʃ <sup>h</sup> , tʃ'	tʂ/ dʐ, tʂ <sup>h</sup> , tʂ'	cç', cʝ <sup>h</sup>	kx'	qχ'		
<b>Nasal</b>	m		n				ŋ			
<b>Trill/ Flap</b>			r, r		ɾ					
<b>Lateral</b>		l, ɭ			l					
<b>Approx.</b>						j	w			

	Front	Central	Back
<b>Close</b>	i, y, ɪ		ɯ, u, u
<b>Close-Mid</b>	e, ø		ɤ, o
<b>Mid</b>			
<b>Open-Mid</b>	ɛ, œ		ɔ
<b>Open</b>	æ	a	ɑ

CONLANG!

Ithkuil

### Sound System Watermelon

	Labial	Coronal	Retroflex	Palatal	Velar	Glottal
<b>Stop</b>	b, p <sup>h</sup>	t/d, t <sup>h</sup>	t̪/d̪		k/g	
<b>Fricative</b>		s/z	ʂ/ʐ		x/ɣ	h
<b>Affricate</b>		ts, t <sup>h</sup>	tʂ/dʐ			
<b>Nasal</b>	m	n		ɲ		
<b>Trill/Flap</b>		r, ɾ				
<b>Lateral</b>		l	ɭ			
<b>Approximant</b>	ʋ			j	w	

	Front	Central	Back
<b>Close</b>	y		u
<b>Close-Mid</b>	e		o
<b>Mid</b>			
<b>Open-Mid</b>	ɛ		ɔ
<b>Open</b>		a	

**GIBBERISH!**

# Takeaways

Systemic pressure vs.  
universal pressure



# Takeaways

Regular use (or overuse)  
can rescue rarer  
phonemes.