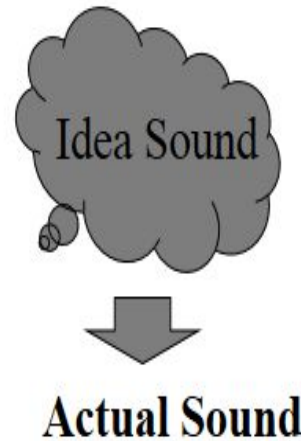


Phonology

Linguistics for Native American
Communities
AILDI



Key to Phonology

/Underlying Representation/

/UR/



[Phonetic Representation]

[PR]

What is the Big Idea?

There are two ways of representing of sounds.

1. The sounds we have in our heads or our idea of the sounds.

/Underlying Representation/ = /UR/

2. The sounds that are actually coming out of our mouths.

[Phonetic Representation] = [PR]

Try this example

🐱 Cats meow.

🐶 Dogs bark.

🐎 Horses neigh.

🐍 Snakes hiss.

🐦 Birds chirp.



English Plurals

- In our minds, we think we add an /s/ for plurals.

/UR/: word + /s/

- But we either add an [s], [z] or [əz].

[PR]: 'cat' [kæt + s]

'dog' [dɒg + z]

'horse' [hɔ:ɪs + əz]

Writing Rules for Sound Changes

$A \rightarrow B / X_Y$

→ 'becomes'

— 'target sound'

X_Y 'when between X and Y'

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English Plural Rule 1

Plural of 'cat'

/UR/: cat + /s/

Rule 1 Add /s/ to words that

/ / → [] / —

[PR]: [kæts]

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English Plural Rule 2

Plural of 'dog'

/UR/: dog + /s/

Rule 2 Add /z/ to words that

/ / → [] / —

[PR]: [dɔgz]

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English Plural Rule 3

Plural of 'horse'

/UR/: horse + /s/

Rule 3 Add /əz/ to words that

/ / → [] / —

[PR]: [hɔrsəz]

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Why Do the Sounds Change on the Way out?

- To make the words sound right.
- To make the words easier to say.
- To make the words easier to hear.
- Just because, darn it!

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Sound Right!

Deletion: _____

'opera'

/UR/: /ɔpəə/

Rule 1

/ / → [] / —

Rule 2

/ / → [] / —

[PR]: [ɔpə]

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Easier to Say!

Nasalization: _____

'team' 'seen' 'sing'

/UR/: /tim/ /sin/ /siŋ/

Rule

/ / → [] / —

[PR]: [tīm] [sīn] [sīŋ]

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Easier to Say 2!

Voicing Assimilation: _____

'please' 'proud' 'pure'

/UR/: /pliz/ /pɹaʊd/ /pjʊɹ/

Rule

/ / → [] / —

[PR]: [plɪz] [pɹaʊd] [pjʊɹ]

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Easier to Say 3!

Place Assimilation: _____

'in-' 'intangible' 'impossible'

/UR/: /in + tændʒɪbl/ /in + pɒsɪbl/

Rule

/ / → [] / —

[PR]: [ɪntændʒɪbl] [ɪmpɒsɪbl]

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Easier to Hear!

Dissimilation: _____

'sixth'

/UR/: /sɪksθ/

Rule

/ / → [] / —

[PR]: [sɪkst]

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Patterns

- Complementary Distribution: when one sound never appears in the same place at the other sound. Have to determine which sound is underlying.
- Underlying Form: should appear in more places than its evil twin!
- **HINT**: When guessing underlying form, choose the sound that appears in more places.

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Steps:

1. Read instruction carefully. May provide clues.
2. Find any minimal pairs-exactly the same except for one sound.
3. Make a vowel chart.

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Steps:

- List the environment-the sound before and after the target sound.
_ target sound # edge of word
- Look for patterns. If there is one, describe it in your own words.
- Write a rule for it using specific sounds. Use features if change affects more than one sound.

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Greenlandic Eskimo

- The four surface vowels [i, e, u, o] of Greenlandic Eskimo (Inuit, Greenland) are derived from only two underlying vowel phonemes.

ivnaq	'bluff'	iperaq	'harpoon strap'
imaq	'sea'	tuluvaq	'raven'
itumaq	'palm of hand'	nanoq	'bear'
iseraq	'ankle'	sermeq	'glacier'
qasaloq	'bark'	ikusik	'elbow'
qilaluvaq	'white whale'	qatigak	'back'
sakiak	'rib'	ugsik	'cow'
orpeq	'tree'	nerdloq	'goose'
marraaq	'clay'		

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Greenlandic Eskimo Vowels

i e u o

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What is the PATTERN?

- What do [i] and [u] have in common?
- What do [ɐ] and [q] have in common?
- What do [e] and [o] have in common?
- Rule:

/ / → [] / —

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Southern Ute Vowels

Southern Ute vowels can be pronounced with vocal fold vibrating or voiced. They can also be pronounced as whispered or devoiced. Use the data below to determine the underlying form of the vowels. Devoiced vowels are marked with a circle underneath them.

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Southern Ute Vowels

mamachj	'woman'
ta'wachj	'man'
na'achichj	'girl'
ta'wachiwa	'with a man'
na'achichiwa	'with a girl'
mamachiwa	'with a woman'

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You can do it!

1. List the environments.

i i

2. Write the Rule.

UR:

/ / → [] /

PR:

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Mohawk Vowels

• In Mohawk (Iroquoian, North America) vowel length is predictable.

wisk	'five'	ké:saks	'I look for it'
rajá:hos	'he plants'	rojó?te?	'he works'
jék:reks	'I push it'	i:raks	'he eats it'
ra.ké:tas	'he scrapes'	nikanúh:zakeh	'houses'
rek.já:ra.ʔa	'he remembers'	wa.hojó?da?	'he worked'
ra.y:kas	'he sees her'	ra.nú:we?s	'he likes it'

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wisk	'five'	ké:saks	'I look for it'
rajá:hos	'he plants'	rojó?te?	'he works'
jék:reks	'I push it'	i:raks	'he eats it'
ra.ké:tas	'he scrapes'	ni.ka.núh.za.keh	'houses'
rek.já:ra.ʔa	'he remembers'	wa.hojó?da?	'he worked'
ra.kas	'he sees her'	ra.nú:we?s	'he likes it'

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1. i:raks
2. rá:kas
3. ké:saks
4. ra.ké:tas
5. ra.nú:we?s
6. rek.já:ra.ʔa
7. wisk
8. jék:reks
9. ra.ját.hos
10. ro.jó?te?
11. wa.hojó?da?
12. ni.ka.núh.za.keh

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.ív.cvcc.	.cívcc.
.cív.cvcc.	.cív.cvcc.
.cív.cvcc.	.cv.cív.cvcc.
.cv.cív.cvcc.	.cv.cív.cvcc.
.cv.cív.cvcc	.cv.cv.cív.cvcc.
.cvc.cív.cv.cv.	.cv.cv.cív.cv.cvc.

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You can do it!

1. List the environments.

v v:

2. Write the Rule.

UR:

/ / → [] /

PR:

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Phonology



Formal: The study of the structure and patterns of sounds in language.



Informal: The unconscious knowledge a speaker has about the sound system of his/her language.

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Steps Review

- 1 Looked at some data - cats meow, dogs bark...
- 2 Identified a sound change or **phonological alternation** - /s/, /z/, and /əz/
- 3 Isolated words receiving a like suffix - cats vs. dogs vs. horses
- 4 Examined the **environment** in which the different alternations occurred - /s/ plurals end in /t/, /k/; /z/ plurals end in /g/, /d/; /əz/ plurals end in /s/
- 5 Identified the characteristic(s) **governing the change** from one sound to another - voicing, stridency

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Why Phonology?

- To understand variation in language
- To characterize universal properties of language
- To understand how language is organized in the brain

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Some Terms (1)

🔊 **Phoneme:** a basic sound that distinguishes words (idea sound).

👤 👤 **Minimal contrasts:** pairs (or groups) of words that have identical pronunciations except for a single phoneme *and whose meanings differ*.

pat~tat~cat~bat~sat~fat~vat~that~hat

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Contrastive

Sounds that alone distinguishes different words.

- ☐ English/p/ and /b/ are contrastive in *pat vs bat*.
- ☐ English/i/ and /ɪ/ are contrastive in *beat vs bit*.

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English Consonant Phonemes

Manner	Voicing	Bilabial	Labiodental	Dental	Alveolar	Alveopalatal	Palatal	Velar	Glottal
Stop	Voiced	p [pat]			t [tak]			k [kak]	ʔ [ʔak]
	Voiceless	p̥ [p̥at]			t̥ [t̥ak]			k̥ [k̥ak]	
Fricative	Voiced		f [fak]	θ [θak]	s [sak]	ʃ [ʃak]			h [hak]
	Voiceless		v [vak]	θ̥ [θ̥ak]	s̥ [s̥ak]	ʃ̥ [ʃ̥ak]			
Affricate	Voiced					tʃ [tʃak]			
	Voiceless					tʃ̥ [tʃ̥ak]			
Nasal		m [mam]			n [nam]		ɲ [ɲak]		
Lateral liquid					l [lak]				
Nonlateral liquid					r [rak]				
Glide		w [wak]					j [jak]	ɰ [ɰak]	

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Distribution

The range of places (the environment) in which a sound (or sounds) occur(s) in a word.

/s/ /z/ /əz/
[kæts] [sneɪks] [dɒgz] [bɪdz] [hɔɪsəz]

Conditioning Context/Environment: the particular place in a word that causes one sound to change to another.

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Distribution

The range of places (the environment) in which a sound (or sounds) occur(s) in a word.

/s/ /z/ /əz/
[kæts] [dɒgz] [hɔɪsəz]
[sneɪks] [bɪdz]

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Distribution

What is the distribution of [æ] and [æ̃]?

hat ham clap pan atom hang
[hæt] [hæ̃m] [klæp] [pæn] [ærm] [hæ̃ŋ]

What is the conditioning environment that causes one sound to change to another?

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Free Variation

When allophones occur in the same environment as the idea sound.

E.g. [p̚] and [p] in English.

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Complementary Distribution

When allophones never occurs in the same place as the idea sound.

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English Syllable-Internal Structure

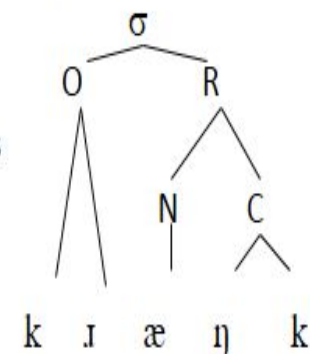
σ = symbol for syllable

O = onset

R = rhyme

N = nucleus

C = coda



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Practice

p a r s p a r k s p a r k l i n g

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Phonotactics (sound+touch)

Restrictions governing how sounds combine to form syllables in a language.

Phonotactic principles dictate which sounds can combine together (or touch) in syllables and which cannot.

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Language Specificity

Russian Onsets:

[psa] “dog’s”

[fslux] “aloud”

[mgla] “fog”

Itel'men Onsets:

[tksxqzokitʃen] “I wanted to eat”

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