Phonology

Linguistics for Native American Communities
AILDI

What is the Big Idea?
There are two ways of representing 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 [æz].
  [PR]:
  ‘cat’ [kæt + s]
  ‘dog’ [dɒɡ + z]
  ‘horse’ [hɔːs + æz]

Key to Phonology

Idea Sound

Actual Sound

/Underlying Representation/

[Phonetic Representation]

[PR]
Writing Rules for Sound Changes

\[ A \rightarrow B / X \_Y \]

→ ‘becomes’
→ ‘target sound’
X\_Y ‘when between X and Y’

English Plural Rule 1

Plural of ‘cat’
/UR/: cat + /s/  
Rule 1  Add /s/ to words that

\[ / / \rightarrow [ ] / \]

[PR]: [kæts]

English Plural Rule 2

Plural of ‘dog’
/UR/: dog + /s/  
Rule 2  Add /z/ to words that

\[ / / \rightarrow [ ] / \]

[PR]: [dɔɡz]

English Plural Rule 3

Plural of ‘horse’
/UR/: horse + /s/  
Rule 3  Add /əz/ to words that

\[ / / \rightarrow [ ] / \]

[PR]: [hɔrəz]

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!

Sound Right!

Deletion:  
/UR/: ‘opera’  
Rule 1  / / \rightarrow [ ] /  
[PR]: [əpəra]

Rule 2  / / \rightarrow [ ] /  
[PR]: [ərə]
Easier to Say!

Nasalization: ‘team’ ‘seen’ ‘sing’
UR: /tim/ /sin/ /sin/ Rule
/ / \ [ ] / 
[PR]: [tim] [sin] [sin]

Easier to Say 2!

Voicing Assimilation: ‘please’ ‘proud’ ‘pure’
UR: /pliz/ /pəwld/ /pjəw/ Rule
/ / \ [ ] / 
[PR]: [pliz] [pəwld] [pjəw]

Easier to Say 3!

Place Assimilation: ‘in-’ ‘intangible’ ‘impossible’
UR: /in + tændʒəbl/ /in + pəsəbl/ Rule
/ / \ [ ] / 
[PR]: [intændʒəbl] [impoəsəbl]

Easier to Hear!

Dissimilation: ‘sixth’
UR: /siksθ/ Rule
/ / \ [ ] / 
[PR]: [sikst]

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.

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

What is the PATTERN?
1. What do [i] and [u] have in common?
2. What do [a] and [q] have in common?
3. What do [e] and [o] have in common?
4. Rule:
   /i/  \(\rightarrow\) [ ] /u/

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

<table>
<thead>
<tr>
<th>Mamachj</th>
<th>‘woman’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta’wachj</td>
<td>‘man’</td>
</tr>
<tr>
<td>Na’achichj</td>
<td>‘girl’</td>
</tr>
<tr>
<td>Ta’wachiwa</td>
<td>‘with a man’</td>
</tr>
<tr>
<td>Na’achichiwa</td>
<td>‘with a girl’</td>
</tr>
<tr>
<td>Mamachiwa</td>
<td>‘with a woman’</td>
</tr>
</tbody>
</table>
You can do it!

1. List the environments.

   i
   j

2. Write the Rule.

   UR:
   / / → [ ] / ____________

   PR:

Mohawk Vowels

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

   wisk: "five"  ke:saks: "I look for it"
   raj:jhos: "he plants"  roj:to?e?: "he works"
   jek:reks: "I push it"  mra:kas: "he eats it"
   rak:et:tas: "he scrapes"  nika:nuh:zakeh: "houses"
   rek:ja:ra?: "he remembers"  wa:joh:o:da?: "he worked"
   ray:ka:s: "he sees her"  runi:we?:s: "he likes it"

You can do it!

1. List the environments.

   v
   v:

2. Write the Rule.

   UR:
   / / → [ ] / ____________

   PR:
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.

Steps Review
1. Looked at some data - cats meow, dogs bark...
2. Identified a sound change or phonological alternation - /s/, /z/, and /az/
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/; /az/ plurals end in /s/
5. Identified the characteristic(s) governing the change from one sound to another - voicing, stridency

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

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.

 Contrastive
 Sounds that alone distinguishes different words.

 - English /p/ and /b/ are contrastive in pat vs bat.

 - English /i/ and /I/ are contrastive in beat vs bit.

English Consonant Phonemes
**Distribution**

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

\[
\begin{align*}
/s/ & \quad /z/ & \quad /æ/ \\
\end{align*}
\]

**Conditioning Context/Environment:** the particular place in a word 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. \([p^*]\) 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**

\(\sigma = \text{symbol for syllable}\)

\(O = \text{onset}\)

\(R = \text{rhyme}\)

\(N = \text{nucleus}\)

\(C = \text{codas}\)

\[
\text{\sigma} \quad \text{O} \quad \text{R} \quad \text{N} \quad \text{C}
\]

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**Distribution**

What is the distribution of \([æ]\) and \([æ]\)?

\([hæt] [hæm] [klæp] [pæn] [æm] [hæŋ]\)

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

Language Specificity

Russian Onsets:
[psa] “dog’s”
[fslux] “aloud”
[mglα] “fog”

Itel’men Onsets:
[tksxqzukitʃen] “I wanted to eat”