Overview

A. Course Business
   (1) Survey
   (2) Syllabus

B. Syllable Basics
   (1) SPE was wrong
   (2) Why might we think there are syllables?
   (3) General theories of the syllable

C. Experiments

SPE Was Wrong

   (1) It provided explicit phonological formalism based on features and rules.

   (2) It accounted for *every* generalization about English.

   (3) Except for feature matrices, there are no phonological constituents!
Why might we think there’s a syllable?

A. Metalinguistic Evidence
   (1) Adults and children can count them.

   (2) There are writing systems based on them, e.g. the Cherokee syllabary:

   ![Cherokee Syllabary](http://quod.lib.umich.edu/j/jep/3336451.0008.105/1:4?rgn=div1;view=fulltext)

   (3) English hyphens (let’s see what your judgments are)

   (4) Syllable-counting in poetry:
      a. Iambic pentameter: “Shall I compare thee to a summer’s day?” (10 syllables)
      b. Trochaic tetrameter: “On the Mountains of the Prairie,” (8 syllables)
      c. Welsh cywydd: “Yr wybrwynt, helynt hylaw,” (7 syllables)

   (5) Language games: Geta, Op, Stink Pink

B. Orthodox Linguistics Evidence
   (1) Stress in English nouns
      a. Stress the third syllable from the right if the second syllable from the right is light and the final vowel is short: América, Cánada, animal, etc.
      b. Stress the second syllable from the right if the final vowel is short and the penult is closed or long: agénda, calýpso (closed penult), aróma, amóeba (long penult)
      c. Otherwise, stress the final syllable: kangaróo, Tennessée, refugeé

   (2) Nasal assimilation in Spanish (Hooper 1972)
      a. Syllable-final nasals assimilate in place of articulation to following stops and glides only if a syllable-boundary intervenes: un beso [umbeso], un gato [ungato], un hielo [unjelo], but miel [mjel], muevo [mwebo]
General theories of the syllable

A. Basic Definition
   (1) Oversimplifying, a syllable is a vowel that is optionally preceded or followed by one or more consonants.

B. Sonority Peaks
   (1) Per Saussure and others, three classes of speech sounds exist – vowels, obstruents, and sonorants – where the latter is realized differently depending on its position in the syllable.

   (2) Vowels are always peaks of syllables whereas consonants are syllabified according to their sonority.

   (3) A gradient relation among consonants and vowels, characterized by a sonority hierarchy, is often the key to understanding phonological phenomena. For example, syllabification in Berber (data from Prince & Smolensky 2004, p. 15):

   a. All syllables must have onsets except those in phrase-initial position; any segment can potentially be a nucleus

<table>
<thead>
<tr>
<th>Nucleus type</th>
<th>Example</th>
<th>Morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiceless stop</td>
<td>.ra.tK.ti.</td>
<td>ra-t-kti</td>
</tr>
<tr>
<td>voiced stop</td>
<td>.bD.dL.ma.ra.tGt.</td>
<td>bddl ma-ra-t-g-t</td>
</tr>
<tr>
<td>voiceless fricative</td>
<td>.tF.tKt..tX.zNt.</td>
<td>t-ftk-t t-xzn-t</td>
</tr>
<tr>
<td>voiced fricative</td>
<td>.txZ.nakk\w</td>
<td>t-xzn#nakk\w</td>
</tr>
<tr>
<td>nasal</td>
<td>.tzM.t.</td>
<td>t-zmt</td>
</tr>
<tr>
<td>liquid</td>
<td>.tR.gLt.</td>
<td>t-rgl-t</td>
</tr>
<tr>
<td>high vowel</td>
<td>.il.di..rat.lult.</td>
<td>i-ldi ra-t-lul-t</td>
</tr>
<tr>
<td>low vowel</td>
<td>.tR.ba.</td>
<td>t-rba</td>
</tr>
</tbody>
</table>
b. In cases of ambiguity, the more sonorous onset becomes the nucleus. Note the changes below in Figure 3 when the 3-m-sg prefix vs. the 3-f-sg is added, and in Figure 4 along with the dat-3-m-sg-obj affix:

\[
\begin{array}{|c|c|c|c|}
\hline
\text{3 m. sg.} & \text{3 f. sg.} & \text{gloss} \\
\text{tBlf} & \text{tFBlf} & \text{pull} \\
\text{tBrA} & \text{tFBrA} & \text{carry on one's back} \\
\text{tXsl} & \text{tFXsl} & \text{go out (fire)} \\
\hline
\text{2 sg.} & \text{3 f.} & \text{gloss with dat. 3 m. sg. object} \\
\text{tRgllt} & \text{tRglA} & \text{lock} \\
\text{tSklt} & \text{tSklt} & \text{do} \\
\text{tMsxt} & \text{tMsxt} & \text{transform} \\
\hline
\end{array}
\]

Figure 3: IT Berber

Figure 4: IT Berber

(4) The sonority hierarchy expresses universal tendencies not absolutes, as is obvious in Berber. Very few languages actually allow consonants, particularly obstruents, to be syllable peaks. Where the “peak” line is drawn varies across and within languages.

(5) Sonority is not just applicable to peaks but also to margins; i.e., typologically speaking, syllables tend to have a particular sonority contour (Clements 19xx), such that sonority rises in the onset and falls in the coda (sonority sequencing).

a. English codas and onsets
   (i) \( r > l > m, n \) in English codas but not onsets: barn, farm, helm, warn, kiln, etc.

b. Sonority and syncope in English (Hammond 1997)
   (i) Words like scéenery, ópera, mémory, céléry, etc. syncopate, but words like córoner, bárony, wárily and óperátic, gènerálity, réspiràte don’t.
   (ii) The conditions on syncope are that sonority must rise across the two consonants that come together and the following syllable cannot be stressed

C. Constituency

(1) Syllables have internal structure as in syntax; all syllables have heads or nuclei, typically the element of highest sonority.

(2) Some structural possibilities
   a. CV Phonology (Clements & Keyser 1983) – Flat Structure

   ![Diagram of CV Phonology](image)

   CV Tier: \( \sigma \)
   Melody Tier: \( k \quad r \quad æ \quad ñ \quad k \)
b. X-theory (Levin 1985) – Flat Structure

X Tier: \[ X \ X \ X \ X \ X \]

Melody Tier: \[ k \ \ \ \ \ \ \ \ æ \ \ \ \ \ \ \ \ ŋ \ \ k \]

c. Onset/Rhyme (Pike 1967, Fudge 1969) - Hierarchical Structure

\[ \sigma \]

Onset \[ k \ \ \ \ \ \ \ \ æ \]

Rhyme \[ \text{Nucleus} \ \ \ \ \ \ \ \ \ \text{Coda} \]

\[ æ \ \ \ \ \ \ \ \ ŋ \ \ k \]

d. Moraic (Hayes 1989) – Hierarchical Structure

\[ \sigma \]

\[ k \ \ \ \ \ \ \ \ æ \ \ \ \ \ \ \ \ m \]

**Methods**

A. What is an experiment?
   (1) A controlled manipulation of factors and variables designed to test a hypothesis
   (2) Must be quantifiable (?)
   (3) Must be replicable (?)

B. Alternatives to experiments
   (1) Observational studies
   (2) Making Stuff Up

C. Food for thought:
   (1) Are traditional linguistic methods of elicitation experiments or observations?
   (2) In either case, what does each contribute to our understanding of linguistic phenomena?