Today's topics:

- **Representing syllable structure in our model**
- **A typology of syllable "options"**

Background preparation:

- PP: Tibetan

0. Today's objectives

After today's class, you should be able to:

- Develop a well-motivated analysis of Tibetan
  - Identify morpheme URs (review!)
  - Develop a non-syllable analysis (mostly review)
  - Syllable-based analysis / comparison
- Add syllable structure representations to our model, including syllable trees & syllable-internal positions
- Explain the cross-linguistic set of syllable-structure universals and options, and apply them in the analysis of a data set

1. Warm-up: Morpheme alternations in Tibetan

- Data set: Tibetan
  - Prep question #1: *What is the UR for the Tibetan morpheme that means 'nine'?*
  - Reminder — What is the **recommended approach** to a prep question like this? (Are you answering this single question in isolation?)

1. Warm-up: Morpheme alternations in Tibetan

Group discussion

- Data set: Tibetan
  - What is the best UR proposal for ‘nine’ **(and the other morphemes in the data set)**? Why?

1. Warm-up: Morpheme alternations in Tibetan

Group discussion

- Data set: Tibetan
  - What is the best UR proposal for 'nine' (and the other morphemes in the data set)? Why?

Debriefing

- What complication do you find when you try to segment **all** the morphemes in this data set?
- What are the logically possible approaches?
- Which approach is best, and why?

2. A segmental-rule analysis for Tibetan

Group discussion

- Data set: Tibetan
  - Prep question #2: *Write a rule for this alternation using our model before we introduced syllables*

2. A segmental-rule analysis for Tibetan

Group discussion

- Data set: Tibetan
  - Prep question #2: *Write a rule for this alternation using our model before we introduced syllables*

Debriefing

- Try stating the rule in words before formalizing
- Remember: Apply your rule to the data set to make sure its **predictions** match the data

3. A syllable-based analysis of Tibetan

Group discussion

- Data set: Tibetan
  - Prep question #3: *How could we approach this alternation using syllable structure? Which approach is preferable here?*
  - *Hint:* There are some similarities to epenthesis in Cairene Arabic!

3. A syllable-based analysis of Tibetan

Group discussion

- Data set: Tibetan
  - Prep question #3: *How could we approach this alternation using syllable structure? Which approach is preferable here?*

Debriefing

- How could we decide whether the segmental approach or the syllable approach is better?

4. Syllables and our phonological model, part 2

- Syllable structure is **phonological** (not phonetic); we have to discover its properties based on **evidence**
- Two **languages may differ** in how they assign segments to syllables (example?)

But phonologists have also found:

- The way a **particular language** assigns segments to syllables is fully **predictable** (consistent)

  - Should syllable structure be stored in URs, or assigned by the phonological grammar? Why?

  → We will return to this point a little later

4. Syllables and our phonological model, part 2

Languages choose from a limited set of **options** concerning allowable syllable structure

- Every syllable contains a **vowel** or a **syllabic consonant** (a [+syllabic] segment)
- Some languages require syllables to **begin with a consonant**, but for others this is optional
- Some languages forbid syllables from **ending with a consonant**, but for others this is optional
- Some languages forbid **more than one consonant** at the beginning or end (or both), but others do not

4. Syllables and our phonological model, part 2

- How can we reflect these observations in our phonological model?
  - Every syllable contains a **vowel** or a **syllabic consonant** (a [+syllabic] segment)
- *Proposal:* Every syllable contains a **nucleus**
  - The presence of a legal nucleus allows a syllable to be built

4. Syllables and our phonological model, part 2

- How can we reflect these observations in our phonological model?
  - Some languages require syllables to **begin with a consonant**, but not all
  - Some languages forbid syllables from **ending with a consonant**, but not all

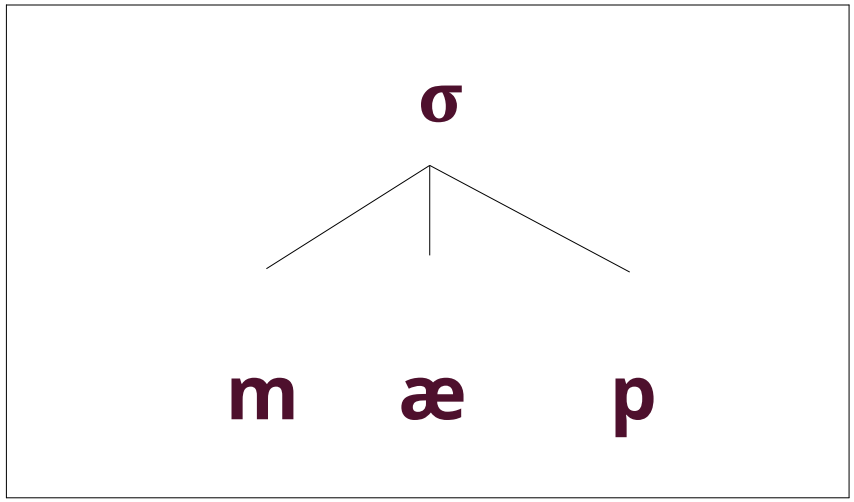
  → Beginning and ending syllable positions are different to the mental grammar

4. Syllables and our phonological model, part 2

- How can we reflect these observations in our phonological model?
  - Beginning and ending syllable positions are different to the mental grammar
- *Proposal:* The grammar distinguishes them
  - **onset**: Any segment in the syllable to the left of (before) the nucleus
  - **coda**: Any segment in the syllable to the right of (after) the nucleus

4. Syllables and our phonological model, part 2

- The **representation** of a syllable in our model



New notation:

- **σ** syllable
- **V** *abbreviates* "[**+**syll]"
- **C** *abbreviates* "[**–**syll]"

Nucleus: The core or main part of the σ; every syllable has a nucleus by definition; always **[+syll]**

Onset: All segments in the σ that precede the nucleus

Coda: All segments in the σ that follow the nucleus

- Onset and coda are always **[–syll]** (by definition)
- Labels like "onset" are **not** part of the representation

4. Syllables and our phonological model, part 2

- How can we reflect these observations in our phonological model?
  - Some languages **require** onsets, but **not all** (and onsets are **never** *forbidden*)
  - Some languages **forbid** codas, **but not all**
  - Some languages **forbid** onset clusters, **but not all**
  - Some languages **forbid** coda clusters, **but not all** (and codas, clusters are **never** *required*)
- *Proposal:* The grammar allows languages to choose from a limited set of syllable-structure options (see handout, “

4. Syllables and our phonological model, part 2

- Our model of the phonological mental grammar currently includes...
  - A set of **features**
  - The concept of a **segment**, made up of features
  - Word boundary (#)
  - Phonological rules that manipulate features (called "**segmental rules**"): A → B / C __ D
  - The concept of a **syllable (σ)**, made up of segments
  - The syllable positions **nucleus**, **onset**, **coda**
  - A set of universal, limited **syllable-structure options**
- We still need to add to our model how the grammar **builds** syllables (and enforces the "options") → we'll add this later!

5. Practice: Describing syllable structure

- Our model can now **represent** the syllable structure of words in a given language
  - Once we have a proposal for how segments are **associated** to syllables, our model can **describe** this structure using **syllable tree** notation

5. Practice: Describing syllable structure

- **Strategies** for determining what the syllable structure of a language is (review from last time)
  1. *Make an initial hypothesis:* Use "straightforward" examples to get insight into how syllable structure determines a phonological pattern
  2. *Consider syllable-structure implications:* What proposal does our initial hypothesis lead us to make about syllable divisions inside words?
  3. *Look for converging evidence:* Can we show that multiple phonological patterns lead us to propose the same syllable structure?

5. Practice: Describing syllable structure

- How is a **…VCCV…** sequence syllabified in…
  - English?
    - [ə**p͡ʰ**lɔd] ‘applaud’
    - [kʰəm**p͡ʰ**ɛɹ] ‘compare’
    - [əs**p**ajɹ] ‘aspire’
  - Cairene Arabic?
    - / faSlu / →[**FAS**lu] ‘his term’
  - Tibetan?
    - / ??? / → [gu**b**d͡ʒu] ‘ninety’
- **Draw syllable trees** for these examples

6. Summary so far

- Our first step in analyzing syllable structure: **Observe** and **describe** what syllable-structure patterns are possible out there in the world
  - Handout - "Syllable structure: Overview / Describing syllabification options"
- **In practical terms**, when working with a data set:
  a) Use the available phonological **evidence** to determine how segments are assigned to syllables in the language
  b) Make **generalizations** about **legal** **nuclei**, **onsets**, or **codas** in the language

7. For next time

- Data set - English loanwords in Korean
  a) Use the available phonological **evidence** to determine how segments are assigned to syllables in the language
  b) Make **generalizations** about **legal** **nuclei**, **onsets**, or **codas** in the language

  → Use the **summary question list** at the end of the handout "Syllables: Overview / Describing syllabification options" and see how many questions you can answer